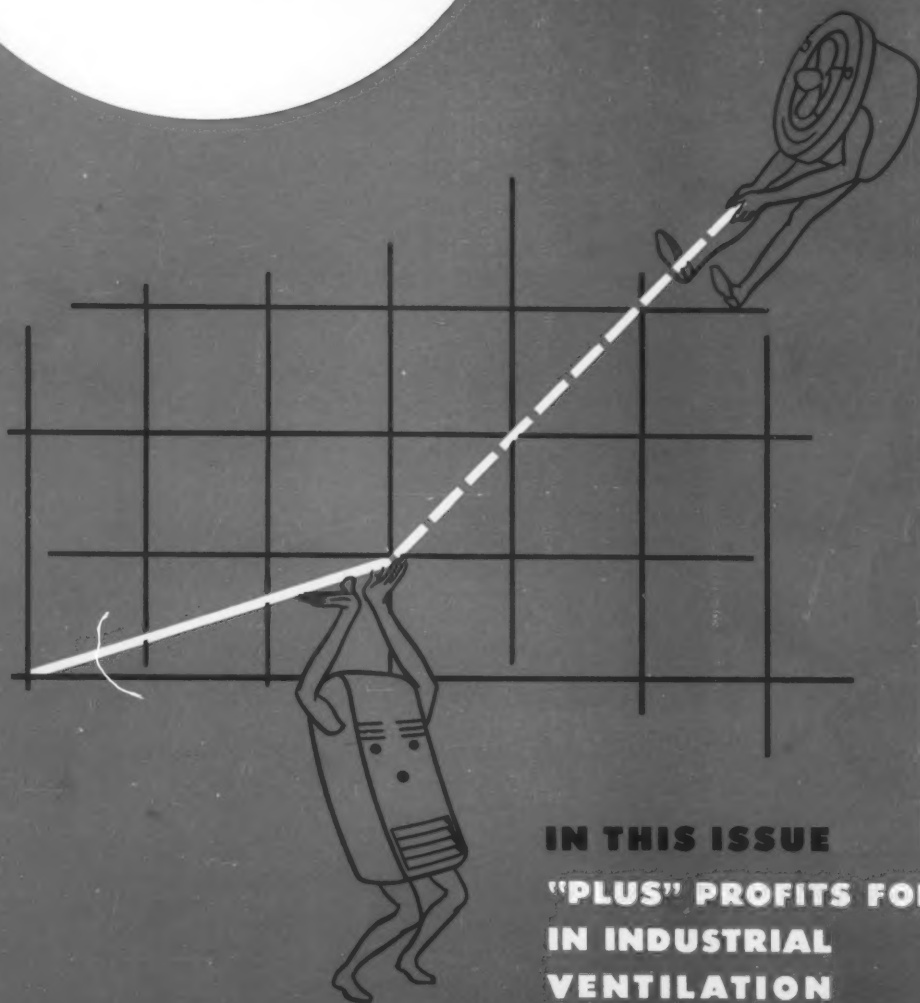


AUGUST, 1951

APR 1 '52P

Commercial Refrigeration

AND AIR CONDITIONING



IN THIS ISSUE

**"PLUS" PROFITS FOR YOU
IN INDUSTRIAL
VENTILATION**

This National Magazine Comes to You with the Compliments of

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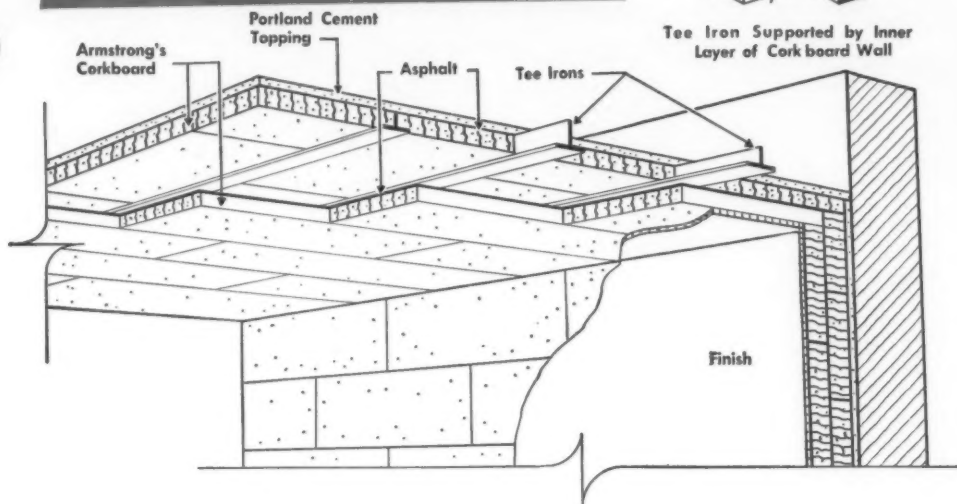
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Buy From Your REFRIGERATION WHOLESALER

From our notebook of

INSULATION CONSTRUCTION



Tee-iron ceilings simplify cold room construction

On cold room jobs where the ceiling of the refrigerated room is to be dropped below the regular room ceiling, it is often practical to use tee-iron construction. This method is simple, inexpensive, and quick. Here's how it works:

First rest the tee-irons on the inner layer of the corkboard wall insulation. Tee-irons should be spaced 12" apart if you're using 2" corkboard, and either 12" or 18" apart if you're using 3" or 4" corkboard. In large rooms, it may be necessary to support the tees by hangers.

Insulation is usually applied in two layers. Place the first layer of Armstrong's Corkboard between the tees, notching the edges to fit snugly the flanges of the tee-irons. Flood the top surface with a heavy coat of hot asphalt and apply 1" of portland cement topping mixed 1 part portland cement and 3 parts clean, sharp sand.

Then apply the second layer of corkboard under the tee-irons and at right angles to the first layer in hot asphalt. Use hardwood skewers to secure it to the first layer. Finally finish the underside of the ceiling with asphalt emulsion.

Corkboard is easy to use with this simplified construction. It can be cut to form clean, sharp edges so that you can make exceptionally tight joints. It will not shrink, swell, warp, or harbor vermin. Finishes bond securely to its surface. With corkboard, you have an insulating material that you can count on to give your customers years of trouble-free service.

You can get complete information on this efficient insulation either by calling the Armstrong office nearest you or by writing direct to Armstrong Cork Company, 5308 Concord Street, Lancaster, Pennsylvania.



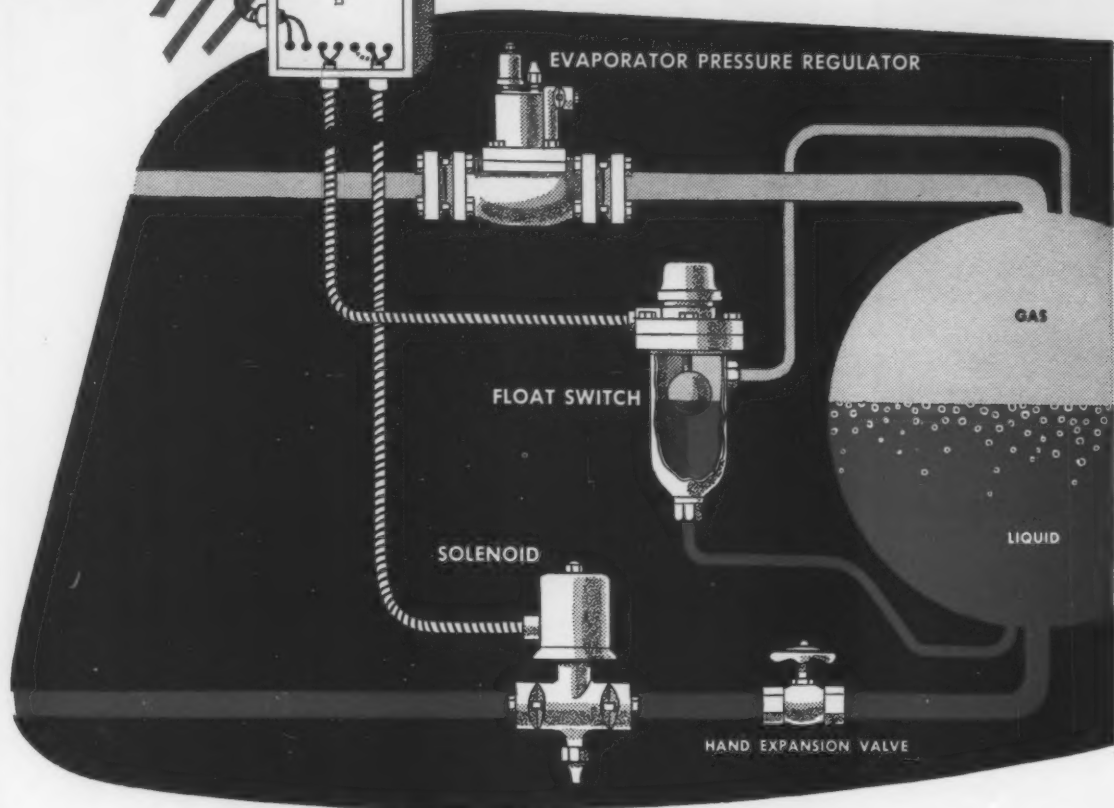
ARMSTRONG CORK COMPANY

Makers of Armstrong's Corkboard and Cork Covering

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ELECTRONIC

REMOTE CONTROL OF LIQUID LEVEL with Alco 908 LECTRO-LEVEL



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- full-flooded evaporators
- shell and tube coolers

FLEXIBLE—adjustable to a wide range of level changes due to load variation

REMOTE CONTROL—easy to set-control dials mounted conveniently in remote box

TIME-PROVEN—Lectro-Level has been successfully employed on critically flooded evaporators throughout the country for over 5 years

We will be glad to send you complete technical and installation information. Write for Bulletin 908 or see your ALCO wholesaler.



Designers and Manufacturers
of Thermostatic Expansion
Valves; Evaporator Pressure
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and AIR CONDITIONING • AUGUST, 1951

4764



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AUGUST, 1951 • COMMERCIAL REFRIGERATION

AUGUST, 1951

VOLUME 8, No. 8

Commercial Refrigeration

AND AIR CONDITIONING

Established 1944 as
THE REFRIGERATION INDUSTRY

THIS MAGAZINE has no
official affiliation with ANY
group, society or association.

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THE COVER . . . Doing a real selling job on industrial ventilation equipment is one answer for the air conditioning contractor who asks, "How can I pull my sales volume up?" If you're the least bit interested in this field, turn to page 44.

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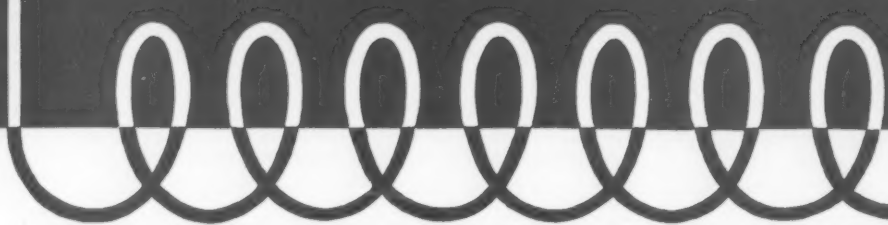
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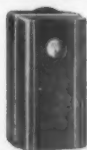
K-25 . . Magnetic Stop Valve



SY-68 . . Strainer



5C-100 . . Time Switch



T-74 . . Humidistat



T-75 . . Cooling Thermostat

Refrigeration Engineers, Service Engineers and Original Equipment Manufacturers, the country over, are discovering that there is a better answer to their problems of automatic control at General Controls. General Controls Design Specialists will welcome inquiries from Design Engineers. Send for Catalog 53R... on your company letterhead, please!

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Manufacturers of Automatic Pressure, Temperature, Level and Flow Controls

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plymetal preforms cut
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Preformed #5031 Silvaloy Plymetal shims helped this manufacturer to double production in brazing carbide tips on this cutter . . . for a 40% saving in labor costs! With better results than ever before!

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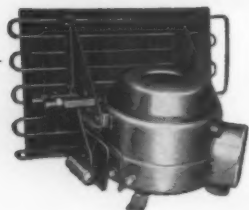
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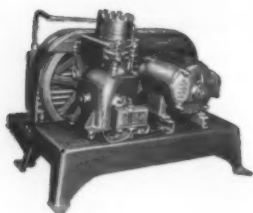
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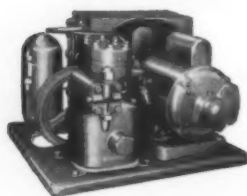
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REMOTES 1/4 HP - 15 HP



SELF CONTAINED 1/8 HP - 3/4 HP



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(unmatched in the industry)

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8. The Universal Cooler trademark, symbolizing quality products for more than a quarter of a century, has highly-valued trade acceptance among the buyers of refrigerating equipment.



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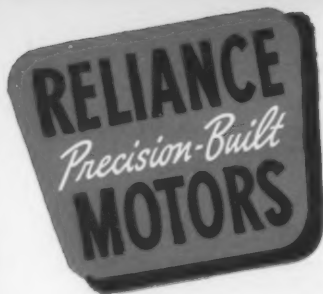
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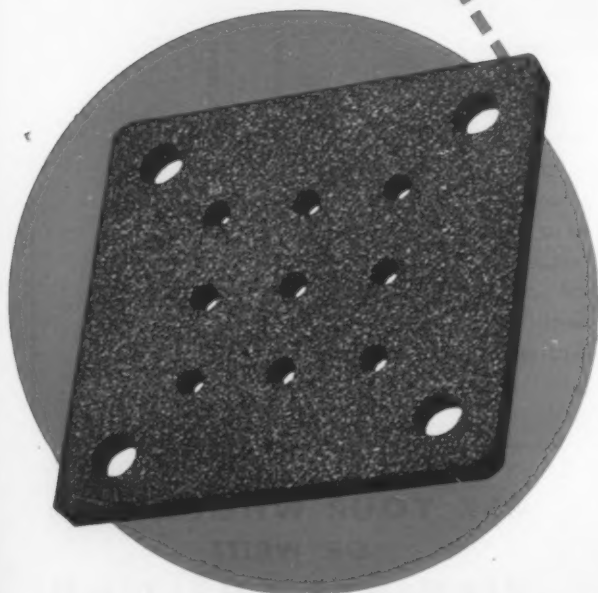
In making a better motor . . .
**IT'S THE LITTLE THINGS
THAT COUNT, too!**



Here is one of the extras which proves that "All Motors are NOT Alike"—this synthetic rubber gasket . . .

- ★ **Permanently indexes the motor leads**
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- ★ **Prevents water from entering motor at conduit box**

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"EXTRA DRY ESOTOO"

(B.P. +14°F.)

"Extra Dry" is the refrigeration grade SO₂ that service and maintenance engineers have endorsed for more than 20 years. Comes in all popular cylinder sizes.

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"FREON" REFRIGERANTS

"FREON-113"	"FREON-114"	"FREON-11"
Boiling Point	Boiling Point	Boiling Point
117.6°F.	38.0°F.	74.7°F.
"FREON-12"	"FREON-22"	
Boiling Point	Boiling Point	
-21.6°F.	-41.4°F.	

Virginia Smelting Company is distributor for "Kinetic" Chemicals "Freon" Refrigerants.

**TO CHARGE A SYSTEM, USE REFRIGERANTS THAT ARE
CONSISTENTLY PURE, CONSISTENTLY SURE**

STOP THAT DRIP with *PRESSTITE* INSULATION TAPE

Now you can stop that constant drip of suction lines, circulating cold water pipes, valves and fittings—stop it once and for all with Presstite Insulation Tape. It quickly and effectively insulates against condensation, and it's so easy to use anybody can apply it. Presstite Tape comes in rolls 2" wide and 1/8" thick. It contains 40 percent virgin cork and will adhere to any metal surface. Wrappings can be built up to any thickness desired. Joints are self-sealing. No cements or other wrappings are needed. The convenient package contains 30 lineal feet. Stop customer dissatisfaction before it can start—use Presstite Tape on all new and reconditioned installations.



VIRGINIA
Refrigerants

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OR WRITE
VIRGINIA SMELTING
COMPANY**

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PHILADELPHIA • NEW YORK • BOSTON
CHICAGO • DETROIT • ATLANTA

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AUGUST, 1951 • COMMERCIAL REFRIGERATION

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**More Special Features
at No Extra Cost!**

Forged **KEROTEST** Brass

GLOBE VALVES

Check these "Extra Value" Features

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2 1/4" - 4 1/4"
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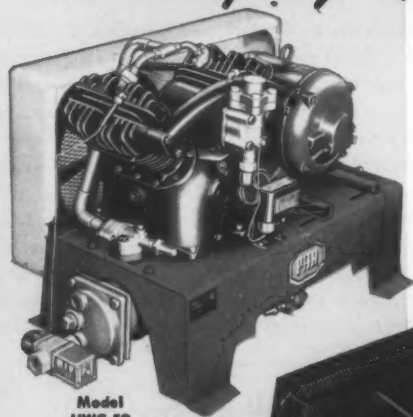
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*Modern testing
methods assure...*



PAR and PARmETIC

B.T.U. Capacity Ratings are Always Right!



Model
HWC-50

PARmETIC
Model PM-O



Lynch modern Calorimeter tests
establish accurately PAR and PARmETIC B.T.U.
Capacity ratings as advertised!

When you buy PAR or PARmETIC,
you're sure the B.T.U. ratings are
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dependable performance.

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1/2 to 15 H.P., Combination air and
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units from 1/8 to 1/3 H.P.

BY COMPARISON—YOU'LL BUY PAR and PARmETIC



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COMPRESSORS



PAR
REFRIGERATION
COMPRESSORS



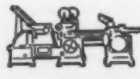
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CANDY & COOKIE
WRAPPING
MACHINES

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CORPORATION
PAR COMPRESSOR DIVISION
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MORPAC
PAPER PACKAGING
MACHINES



MORPAC
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PACKAGING
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MACHINES

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DETROIT'S PLAN- NOW MORE POWERFUL THAN EVER!



With the Addition of **CHAIN STORE AGE**
DETROIT Sells Both Your Independent and Chain-
Store Customers the Vital Need for
PERIODIC SERVICE CHECK-UPS!

GROCERY STORES

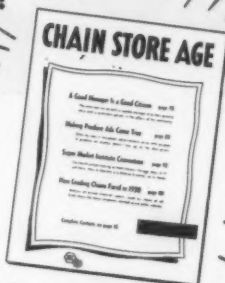
MEAT MARKETS



RESTAURANTS



DAIRY STORES



To a successful, power-packed, business building plan, **DETROIT** now adds the terrific impact of chain store coverage! Month after month **DETROIT** advertising will now be working for you stressing the vital need for periodic service check-ups to chain drug, grocery and variety stores the country over—a huge market with a huge investment in refrigeration! In addition, **DETROIT** will continue to sell your customers in the independent grocery, butcher, restaurant, dairy and ice cream fields with full page attention-compelling advertising. Never before has a program designed to promote proper refrigeration maintenance had such backing—and never before has a program had such results! Be sure your supply of **DETROIT** Expansion Valves, Solenoid Valves and Controls is adequate to meet all service demands.

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FOR YOUR SUPPLY
OF "INDUSTRY SLOGAN STICKERS!"

DETROIT

LUBRICATOR COMPANY

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DETROIT HEATING AND REFRIGERATION CONTROLS • ENGINE
SAFETY CONTROLS • FLOAT VALVES AND OIL BURNER EQUIP-
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ACCESSORIES • STATIONARY AND LOCOMOTIVE LUBRICATORS

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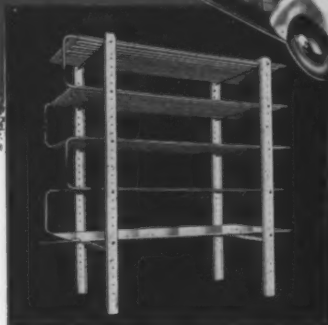


let **KOLD-HOLD** show you
*the most efficient line
 of refrigeration products
 money can buy*



Serpentine Plates

"Hold-Over" Type Plates

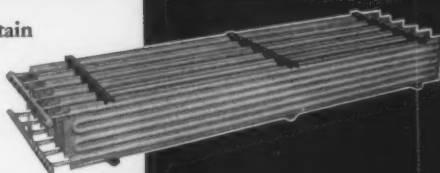


Serpentine Plate Stands

There is a difference in the performance of Kold-Hold Refrigeration Plates that shows up in reduced operating costs. The difference is found in their greater efficiency . . . their ability to pull down larger loads, faster . . . using less power . . . at a lower cost to you.

This efficiency is readily apparent in "Hold-Over" Plates that maintain dependable, low temperatures in truck bodies for as little as 10c a day. Operated off the existing plant cooling system or by a condensing unit mounted on the truck, they hold predetermined temperatures throughout the longest day's hauls and reduce the cost of marketing perishable foods.

This efficiency can be seen in "Serpentine" Plates for quick freezing, chilling and holding. These plates have the equivalent of 100% prime surface because the refrigerant flows in a continuous pass formed in the plate itself. There is no internal tubing or piping. This exclusive "Serpentine" design in individual Plates, Plate Stands and Plate Banks assures you more efficient refrigeration . . . less trouble . . . lower costs! *Send for full details today!*



Serpentine Plate Banks

KOLD-HOLD

protects every step of the way

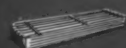
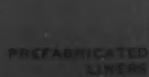


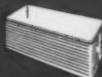
PLATE BANKS



PLATE STANDS



PREFABRICATED LINERS



SERPENTINE EVAPORATORS



"HOLD-OVER" PLATES

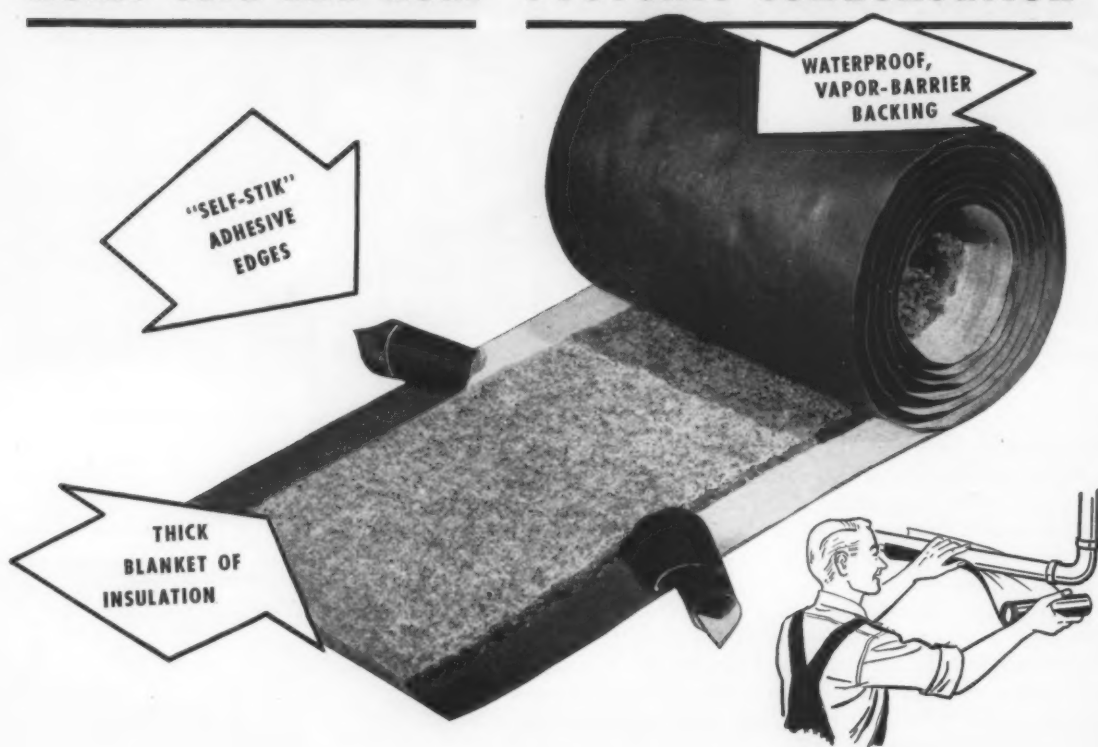
KOLD-HOLD MANUFACTURING COMPANY, 503 E. Huron St., Lansing 4, Michigan

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 and AIR CONDITIONING • AUGUST, 1951

MYSTIK

Self-Stik DRI-PIPE INSULATION

Holds Cold and Heat • Prevents Condensation



MYSTIK DRI-PIPE—the insulation with “self-stik” edges—goes on fast, saves time and money on installation. Ideal for low-temperature applications—on cold water lines, cold air ducts, refrigeration lines. Holds temperatures, prevents

condensation and dripping, eliminates icing and frosting on refrigeration lines. Also has extensive other cost-cutting insulation uses—on warm water lines, warm air ducts and for sound deadening. Ask your supplier or . . .

WRITE NOW for free sample of MYSTIK Self-Stik DRI-PIPE Insulation
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MYSTIK CLOTH TAPES • MYSTIK PAPER MASKING TAPES • MYSTIK SPRA-MASK • MYSTIK PROTECTO-MASK • MYSTIK SAND-BLAST
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AUGUST, 1951 • COMMERCIAL REFRIGERATION

**More sold this year
than ever before**

BRUNNER
SINCE 1906

AIR CONDITIONING

This is AIR CONDITIONER Weather and your last chance to CASH IN!

These are your customers. Restaurants, taverns, theatres, grocery and meat stores, clothing stores and practically all the other retail trades *plus* business offices and manufacturing plants.

Contact them by personal call or telephone. Let them know you are in position to make immediate installation of a famous BRUNNER Self Contained Air Conditioner in the correct capacity to fit the requirements of their place of business.

It has been proven time and again. An air conditioner will pay for itself in the extra business attracted and in a host of other ways. Illustrated Brunner literature will give you the entire story.

Your last chance for extra summer season profits. Only a limited supply of these BRUNNER Self Contained Air Conditioners is still available in all sizes for immediate delivery. No air conditioner has a finer reputation. They are priced right and good looking too. Make simple water and power connections and they go to work.

BRUNNER MANUFACTURING COMPANY
UTICA 1, NEW YORK, U. S. A.

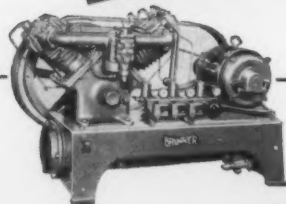
★ **Distributors** — If your floor stock has been depleted, phone us for replacements. We want to do everything possible to prevent disappointments this year through unfilled orders.

★ **Dealers and Service Shops** — Let the factory or your regular Brunner distributor know at once your anticipated needs so we can provide units in the desired sizes.

BRUNNER
SINCE 1906

AIR CONDITIONING

- Self Contained 3 HP. to 10 HP.
- Remote Type 3 HP. to 75 HP.



Completely Brunner built... backed by a fine reputation forty-five years old.

REFRIGERATION CONDENSING UNITS by
AIR AND WATER COOLED MODELS—a size
and type for every purpose... 1/4 HP. TO 75 HP.

BRUNNER
SINCE 1906

and AIR CONDITIONING • AUGUST, 1951

'PENNYwise purchasing agents
standardize on QUALITY tubing



HIGH STANDARDS at PENN UNAFFECTED by SHORTAGES

Curtailment of copper for consumer products is a natural result of national emergency. The government needs more and more tubing for military equipment, and of course, quality is an essential requirement. After filling defense orders, Penn has less tubing left than is normally sold through refrigeration, automotive and bottled gas outlets. As a result, allotments have been reduced—however, you can always count on 100% quality from Penn. Tubing bearing the Penn trademark is 100% dry—100% clean and bright—100% easy bending. Remember Penn—the tube that goes further.



PAPCO TUBE TOOLS help cut down waste through fast operation and efficient performance. Write today for literature showing how to save with Papco.

For Quality Tubing - Say "Penn Again"



PENN BRASS & COPPER COMPANY

ERIE • PENNSYLVANIA • TELEPHONE 3-5111

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AUGUST, 1951 • COMMERCIAL REFRIGERATION

for all water cooling use *Filtrine* —sell more condensing units

"DO Rating" Orders are Vital...

Filtrine Products Meet Government Specifications

All Federal Agencies ... Air Force ... Army ... Navy ... Marine Corps ... know that Filtrine products meet government specifications.

COOLERS FOR MESS HALLS — CAFETERIAS

Sell your own condensing unit ... with coolers backed by Filtrine's 40-year dependability. 1. General acceptance for high efficiency—dependability—20-year life-span construction. 2. High capacity—super storage. 3. Handsome exterior (all Stainless Steel or Duco with Stainless trim). 4. Equipped to suit with top and/or side shelves. 5. Bubblers, glass-fillers, front, back, or all sides. 6. Can be "Taste-Master" equipped to banish chlorine and insure sparkling water.



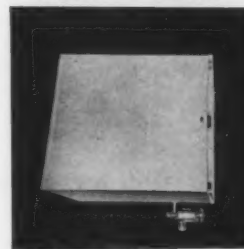
MC-14-S MC-25-S
MC-43-S MC-40-S



No. 4
"Taste-Master"
Filter

COOLERS FOR X-RAY & PHOTOGRAPHY

Sell your own condensing unit ... with these Filtrine coolers as repeatedly named for military and V. A. X-ray installations; Signal Corps and Air Force dark rooms and photo labs. 1. Dependable water of correct temperature for film processing. 2. Large storage for heavy draw and emergency requirements. 3. High efficiency, economy operation—20-year life-span construction. 4. Floor mounted with *Stainless Steel* work-table top; also under-counter models. 5. Filters (extra) prevent scratched and pinholed negatives.



PH-7 PH-14 PH-25



MH-300-R M-90-R MA-40-R M-25-R M-14-R X-2-R M-10-R
MH-150-R M-75-R M-43-R M-7-R M-20-R
M-300-R M-40-R
M-150-R

REMOTE COOLERS FOR ALL USES

Sell your own condensing unit ... with Filtrine coolers suitable for new and replacement installation everywhere: barracks, military depots, mills, schools, postoffices. 1. Capacities—5-800 g.p.h.—storage 7-300 gallons. 2. High efficiency—20-year life-span. 3. Insulation—2" hydrolene-sealed corkboard. 4. Filters and Rectifiers/Dechlorinators available for all sizes.

PACKAGED CIRCULATING CHILLED WATER SYSTEMS

Sell your own condensing unit ... with complete Filtrine systems for circulating drinking water in offices, hospitals, industrial plants ... for processing water as low as 34 deg. 1. Completely packaged for streamlined engineering, quick installation. 2. Capacities 5 to 400 g.p.h.—Storage 5 to 150 gallons. 3. Equipped with heavy-duty pump. 4. Your condensing unit factory installed. 5. Insulation—2 inch hydrolene-sealed corkboard. 6. 20-year life-span construction. 7. Filter-Rectifier assembly (extra) to kill chlorine and keep water sparkling.



Typical "Packaged"
Circulating Chilled Water System

Get our new "How to Sell D O Jobs" Write Dept. RF2

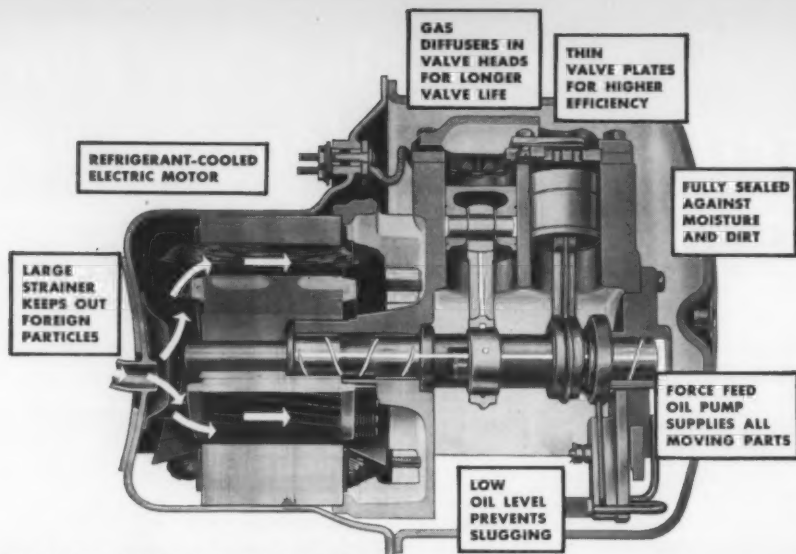


FILTRINE MANUFACTURING COMPANY · BROOKLYN 5 · N. Y.

"Water Coolers and Filters for 40 Years"

Circle No. 26 on Reader Service Card for more information

and AIR CONDITIONING • AUGUST, 1951



HERE'S INSIDE INFORMATION

TO PROVE THAT

SERVEL SUPERMETICS

ARE SOUNDLY ENGINEERED
AND SOUNDLY BUILT!

BACK OF WHAT'S INSIDE OF EVERY SERVEL SUPERMETIC ARE...



Servel Supermetics and Genuine Factory Parts Are Available Through 92 Authorized Wholesale Suppliers

- ★ 30 YEARS of refrigeration engineering and manufacturing experience . . .
- ★ MORE THAN 70 ACRES of modern refrigeration plant and equipment, and . . .
- ★ A RECORD of trouble-free performance that makes possible Servel's

5-YEAR FACTORY WARRANTY

Servel **SUPERMETIC**

Models for every commercial refrigeration and air-conditioning use . . . 1/5 to 5 H. P.

SERVEL, INC., ELECTRIC REFRIGERATION DIVISION, EVANSVILLE 20, INDIANA

Circle No. 18 on Reader Service Card for more information

AUGUST, 1951 • COMMERCIAL REFRIGERATION



"We find as many occasions to use our Amprobes as we do our pressure gauges — and in refrigeration, that's saying plenty!", writes Mr. Schilling. "An invaluable tool for checking start and run current influx (especially good on sealed units), voltages, causes of fuse blow-outs, and dozens of other uses."

"COULD A DOCTOR GET ALONG WITHOUT A STETHOSCOPE?"

*that's how the Amprobe,
rates with John E. Schilling,*

*owner, Schilling Chilling Company,
1403 E. Southern, Indianapolis, Ind.*



\$49⁵⁰

*complete with
genuine top grain cow-
hide leather case and
voltage test leads.*

OTHER AMPROBE USERS SAY:

"Far superior to any instrument of any type performing the same service that I ever saw or used. A 'must' item for any refrigeration serviceman or electrician." — Roy V. Culy, Culy Refrigeration Service, Richmond, Ind.

"The Amprobe is easy to take with you when you go to check a motor, due to its small size. Also, the design of the jaws will let the Amprobe work inside the terminal box on most motors." — Leicester Moore, Moore Electrical Motor Service, Brady, Texas.

"One of the handiest instruments I ever owned. It is so small and accurate, I am sorry I never had one before this." — Kenneth O. Bultman, Electrician, Fairborn, Ohio.

AMPROBE — THE SNAP-ON VOLT-AMMETER THAT FITS IN YOUR POCKET!

Reads current without interrupting circuit or breaking insulation

Look what you can do with this one pocket-size tool: Determine load conditions instantly without having to shut down equipment. Spot motor overloads and underloads. Diagnose trouble calls faster, under actual load. Check line voltage and drops. Set overload relays, etc.

- So compact, it fits in your pocket.
- ½ the usual size — only 7".
- ½ the usual weight — only 14 oz.
- Accuracy: $\pm 3\%$ (of full scale deflection).
- Field-proved and accepted — tens of thousands in daily use today.
- About ½ the usual price.



**Send for
this 16-page manual**

CH-6
PYRAMID INSTRUMENT CORP.
49 Howard Street
New York 18, N. Y.

Please send me your new 16-page Manual — "HOW TO MAKE YOUR JOB EASIER WITH AN AMPROBE."

Send literature on Amprobe Sensitizer and Split Plug.

(print your name, company and address in the margin)

AMPROBE 10X SENSITIZER



Effectively gives the Amprobe 3 additional ranges: 0-1 AMPS. 0-2.5 AMPS. 0-5 AMPS. **\$375**

Model A-6 measures 5 A.C. current ranges: 10/25/50/100/250 amperes; plus 2 A.C. voltage ranges: 150/600 volts. Two other models available.

AMPROBE®

A PYRAMID INSTRUMENT

See it today at the better electrical distributors

Circle No. 19 on Reader Service Card for more information
and AIR CONDITIONING • AUGUST, 1951

LETTERS

Reads Up On Research

EDITOR:

Your Chicago Sales Office has suggested that I write to you to secure a reprint of an article that appeared in the May 1951 issue of your magazine.

The article I am interested in was entitled "Research Relies on Refrigeration" together with the chart that appeared on page 54, entitled "Here's What an All-Weather Laboratory Uses".

I would greatly appreciate it if you could send me a reprint of this article, or an additional copy of the May 1951 issue of your magazine.

Thank you for your courtesy and kind consideration in this matter.

S. C. STEIN
Spartan Engineering Co.
Chicago, Ill.

To Mr. Stein, a copy of our May issue with our compliments.

Wants "Sunshade" Paint

ADVISE WIRE COLLECT WHERE WE MAY OBTAIN SUNSHADE BLUE MENTIONED IN YOUR JUNE ISSUE OF COMMERCIAL REFRIGERATION UNDER BTU'S

LAURENCE ELISHA
HOTEL JEROME
ASPEN, COLO.

"Sunshade Blue" paint, which has been developed for application to window and other glass surfaces to reduce heat load as well as glare, is available from Rex Supply Co., 142 South Highland Ave., Ossining, N. Y.

Battery-Operated Unit

EDITOR:

Please advise us who manufactures a small refrigerator that can be used in an automobile and operated on a battery of a car.

CHARLES RUDBERG
Shenandoah, Pa.

Manufacturers of portable refrigerators include Ionia Mfg. Co., Ionia, Mich., and Midwest Sales Engineers, Inc., 824 Lemcke Bldg., Indianapolis, Ind.

These companies make small refrigerators of about 2½ cu. ft. capacity but we are not sure that they are the



Now
Available

5 YEAR PROTECTION POLICY

For Lehigh BLU-COLD HERMETICS

—an added feature for these fine units which are now available in Low Torque and Capacitor Types from 1/4 thru 1/2 H.P. Ask your Lehigh jobber or write for catalog.

Lehigh



BLU-COLD

Lehigh Manufacturing Co.

DIVISION OF LEHIGH FOUNDRIES, INC. • Plant: LANCASTER, PA.

Export Department — 39 Broadway, New York 6, N. Y.

Circle No. 20 on Reader Service Card for more information

type that will operate off an automobile storage battery. However, you can find this out readily by writing to them.

Trailer Refrigerators

EDITOR:

We are interested in procuring information from manufacturers who make refrigerators for installation in house trailers.

The type of information wanted is: (1) Names of manufacturers and local distributors of complete units; availability of units and costs. (2) Availability of condenser unit and evaporator only for installation in an ice box, cost of units and any technical information on the possibilities of such an installation.

R. W. MCMAHAN
Refrigeration Service & Supplies
Richland, Wash.

We are unable to give you the names of any local distributors, or units, etc., but firms who manufacture refrigerators of the type that could be used in house trailers include: Acme National Refrigeration Co., Inc., 630 14th St., Brooklyn 16, N. Y.; Sanitary Refrigerator Co., 105 Oak Place, Fond du Lac, Wis.; Marvel Industries, Inc., Sturges, Mich.; Travis Mfg. Co., 6216 North Telegraph Rd., Dearborn, Mich.

By writing to these companies, you should be able to obtain all the information in which you are interested.

THE recent \$5,000 Mechanics' Contest sponsored by Bonney Forge & Tool Works of Allentown, Pa., received one of the two 1951 cash Putman Awards "for the best use of industrial advertising and the best documentation of such use".

The award was made at the luncheon meeting of the National Industrial Advertisers Association in the Ballroom of the Waldorf-Astoria Hotel in New York.

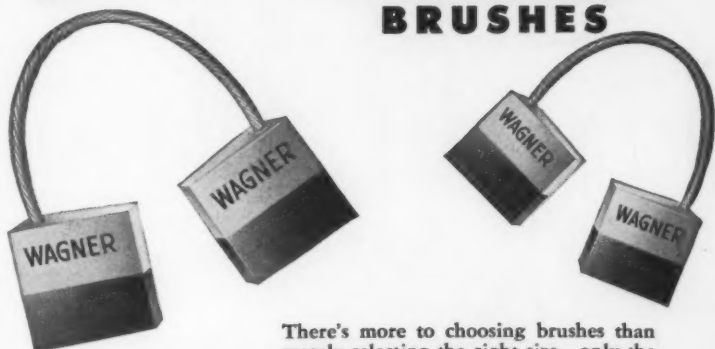
The Bonney Mechanics' Tool Contest ran during March, April and May of 1950 and was entered by 13,268 mechanics. Top mechanics' prize was \$1,000, with an additional 1506 prizes in the form of cash and merchandise. In addition to these prizes for mechanics, 49 cash prizes were awarded to jobbers' salesmen for their part in the contest.

COMMERCIAL REFRIGERATION magazine and automotive trade papers were used to advertise the contest.

Genuine Joe says:



be sure
your rebuilt
motors run
like new
always use genuine
Wagner
BRUSHES



There's more to choosing brushes than merely selecting the right size—only the same grade of carbon that was originally specified will give you equally good motor performance.

When you use genuine Wagner brushes for replacements, you get the correct grade as well as size—you get the finest brushes obtainable—and you get maximum performance, commutator, and brush life.

Identify them by the name WAGNER appearing on the brushes.

Every repair shop needs Wagner's Fast-Moving Parts Bulletin MU-122 and Motor Parts Catalog MU-40. Write for your copies today.



WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U. S. A.



MOTORS • BEARINGS • STANDARD ROTORS
BRUSHES • CAPACITORS • COMMUTATORS

650 AUTHORIZED SERVICE STATIONS
OR PARTS DISTRIBUTORS

Circle No. 21 on Reader Service Card for more information



This UNIT goes with me
on Every call!

I can diagnose moisture trouble in a few
minutes—cure it fast—and know the system
is dry and clean when I leave!

DFN MOISTURE CONTROL UNIT

Saves time—saves callbacks on
servicing jobs or new installations

WHEN a system "acts up" or shuts down, always suspect moisture. Eliminate guesswork—find out in a few minutes with the DFN Moisture Control Unit. If the Indicator shows dry—look elsewhere for the trouble. If it shows wet, you can have the system running efficiently in a single pass of the refrigerant through the Unit.

The DFN Moisture Control Unit is a versatile service tool—proven by thousands in use. It consists of a large cartridge type drier, a moisture indicator and controls, mounted on a handy carrying panel. Takes up and holds over 18 teaspoonfuls of water. Services many jobs in field, shop or factory. Filters all sludge, solder flux and foreign matter. Designed for liquid line installation, it dries efficiently at refrigerant temperatures up to 150° F—dries to minus 60° dew point.

See the DFN Moisture Control Unit at your wholesaler—or write us for Bulletin C-2.

For high-capacity, permanent installation—

McINTIRE DC Cartridge Type FILTER-DRIERS

Guaranteed moisture ratings assure extra capacity for peak summer loads. Dries efficiently up to 150° F. Low-cost cartridge replacement saves money, saves critical materials. Readily obtainable at your wholesaler.

Our 26th Year

DFN

TRADEMARK

DRIERS . . . all types and sizes, up to 100 tons
MOISTURE CONTROL UNIT MOISTURE INDICATOR
STRAINERS FILTERS

McINTIRE CONNECTOR CO. 257 Jefferson St., Newark 5, N. J.

Circle No. 22 on Reader Service Card for more information

AUGUST, 1951 • COMMERCIAL REFRIGERATION



*...and we'll make sure the air conditioning
is equipped with HONEYWELL CONTROLS!*

The engineer in Parth's cartoon has a mighty sound idea—as we think you'll agree.

The plain fact is—there's no better guarantee of dependable, trouble-free operation than the Honeywell name on automatic controls for air conditioning and refrigeration.

So make *your* first choice Honeywell Controls—the first choice of architects, builders and consumers. For full information—or a 8½" x 9" reproduction of this Parth cartoon—write today to Honeywell, Dept. CR-8-119 Minneapolis 8, Minnesota. In Canada, Toronto 17, Ontario.

MINNEAPOLIS
Honeywell

First in Controls

Circle No. 23 on Reader Service Card for more information
and AIR CONDITIONING • AUGUST, 1951

Every G-E Condensing Unit offers these 5 extra values!

1,000,000-UNIT EXPERIENCE

Over the last twenty-five years General Electric has placed in operation in commercial applications more than a million units. Right in your community there are many G-E Condensing Units proving day after day the effectiveness of the right design, materials, and workmanship.

TOP CUSTOMER ACCEPTANCE

Let the widespread acceptance of General Electric products work for you.

OVER-THE-COUNTER SERVICE THROUGHOUT THE U. S.

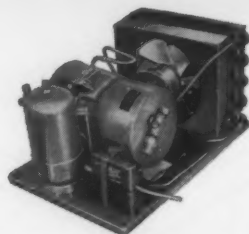
All over the country there are G-E Refrigeration Equipment Wholesalers and Renewal Parts Depots ready to handle all your requirements on the spot. Whether you need complete units or only parts, these authorized wholesalers offer fast, efficient over-the-counter service.

YOUR CHOICE OF A FULL RANGE OF 35 MODELS

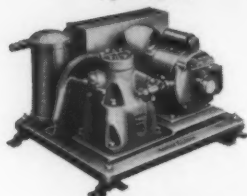
For every commercial refrigeration and small air conditioning application—both self-contained and remote—you will find a suitable G-E Condensing Unit. Choose from 10 Hermetics from $\frac{1}{6}$ to $\frac{1}{2}$ HP and 25 Open Type Units from $\frac{1}{4}$ to 10 HP.

SIMPLE IN-WARRANTY REPLACEMENT POLICY

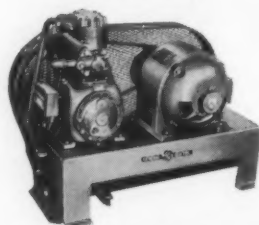
The G-E standard warranty covers every G-E Condensing Unit. This warranty builds your customers' confidence and goodwill. But—more important to you—replacement units and parts are quickly and easily available at any of G.E.'s authorized wholesalers.



Sealed Units
 $\frac{1}{6}$ to $\frac{1}{2}$ HP



Open Type Units
 $\frac{1}{4}$ to 2 HP



Open Type Units
3 to 10 HP

G-E compressor bodies available
in sizes from $\frac{1}{6}$ to 10 HP

SEE YOUR NEAREST G-E REFRIGERATION EQUIPMENT WHOLESALER
AND RENEWAL PARTS DEPOT FOR



Condensing Units and Renewal Parts

WRITE to General Electric Company, Section CR-5, Air Conditioning Department,
Bloomfield, N. J. for free literature on G-E sealed and open units.

You can put your confidence in—

GENERAL  ELECTRIC

Circle No. 24 on Reader Service Card for more information

AUGUST, 1951 • COMMERCIAL REFRIGERATION

YOU GET THE GREATEST SERVICE FROM

Prest-O-Lite CYLINDERS

Trade-Mark

FOR REFRIGERANT GASES



35-lb. capacity

HERE'S WHY:

1 Superior Quality

You're assured the best in cylinder design and production because of an unsurpassed "know-how" gained through more than 35 years of experience and skill by the largest manufacturer and user of compressed gas cylinders.

2 Longer Life

Many extra years of trouble-free life—and added resistance to denting, piercing, and corrosion—result from the stronger walls and durable construction.

3 Lighter Weight

Transportation costs are reduced, and the cylinders are easier to handle, because there are no extra-thick sections that only add weight without adding strength.

4 Uniform Wall Thickness

This advantage is worth special consideration. Unusually close tolerances in wall thickness mean greater overall protection.

5 They Surpass Code Requirements


You know sturdy PREST-O-LITE Cylinders will never let you down because they're made, tested, and inspected not only in accordance with I.C.C. Specifications, but they also undergo our own rigid tests far beyond standard requirements.

PREST-O-LITE cold-drawn cylinders for refrigerant gases are available in 5-lb. (rounded bottom or with foot ring), 10-lb., 25-lb., and 35-lb. sizes. You can have 50-lb., 100-lb., 150-lb. or special sizes and styles made to your specifications. Save more money in the long run by using the finest cylinders. Just mail the coupon today for complete information.

"Prest-O-Lite" is a registered trade-mark of Union Carbide and Carbon Corporation.

LINDE AIR PRODUCTS COMPANY

A DIVISION OF
UNION CARBIDE AND CARBON CORPORATION

30 East 42nd Street  New York 17, N. Y.

Offices in Other Principal Cities

In Canada:

DOMINION OXYGEN COMPANY, LIMITED, Toronto

LINDE AIR PRODUCTS COMPANY

R15

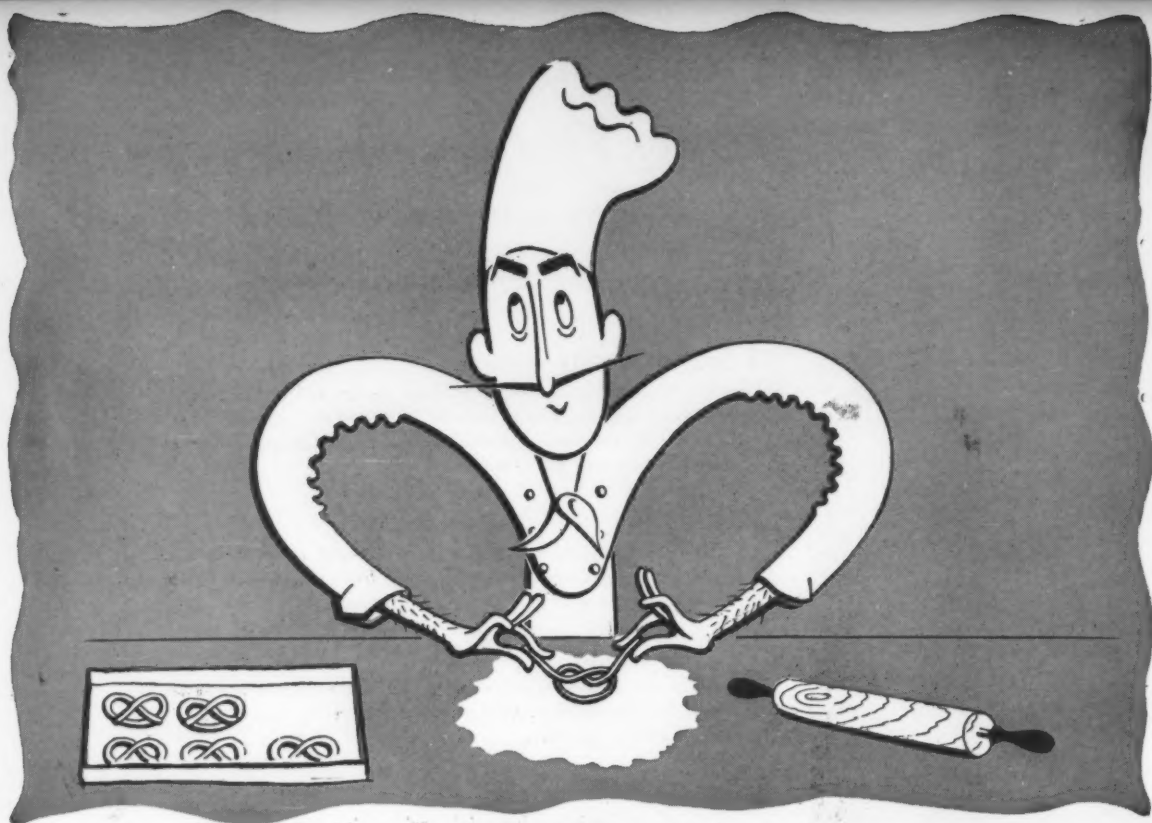
30 East 42nd Street
New York 17, N. Y.

Please send full information about PREST-O-LITE Cylinders for refrigerant gases.

NAME.....

COMPANY.....

ADDRESS.....



as easy as bending **DRYSEAL** REFRIGERATION TUBE

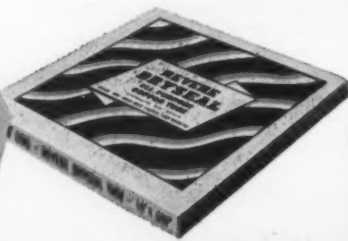
● There's nothing to bending dead-soft Dryseal. No special tools . . . in fact no tools at all, are needed. Simply bend it by hand. The soft temper of the copper used and its ductility are the reasons why Dryseal will not give you any trouble by splitting when it is flared for compression fittings.

Another important feature is the absence of moisture in Dryseal. A special, precise, mechanical double-crimp seal made at each end of the tube when it is manufactured keeps the inside com-

pletely bone-dry and free from dirt. What's more, this seal is made in such a way that it does not change the diameter of the tube. This makes it possible to pass the tube through any opening large enough for the tube itself. Economical tube sizes range from $\frac{1}{8}$ " to $\frac{3}{4}$ " O.D.

And, for your greater convenience we have just recently brought out Dryseal in a nifty-50 one-coil carton. This carton, which has been attractively designed for easy identification in stock, contains one 50-foot coil of Dryseal. . . is easier to handle, light weight, economical.

**NOW in the
NIFTY-50
one-coil
carton!**



REVERE
COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, New York

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.;
Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.

Sales Offices in Principal Cities, Distributors Everywhere.

SEE "MEET THE PRESS" ON NBC TELEVISION EVERY SUNDAY

Circle No. 26 on Reader Service Card for more information

AUGUST, 1951 • COMMERCIAL REFRIGERATION

HOW TO SELL REFRIGERATION TO THE PROSPECT WHO SAYS

I NEED NEW
EQUIPMENT
BUT I DON'T HAVE
THE MONEY
FOR IT

He is in the habit of
paying his suppliers daily.

As a result, at the
end of the month there
is not enough left
to pay large down
payments and lump sum
monthly payments.

Your Answer Is

THE METER PLAN

OF
DAILY SAVINGS

Your Customer
Deposits
Just a Few
Quarters
a Day.



Meter-Matic DM6 Meter

- LOW IN PRICE
- FULLY GUARANTEED
- IMMEDIATE DELIVERY

MAIL THIS COUPON TODAY

INTERNATIONAL REGISTER CO.
2626 W. Washington Blvd.
Chicago 12, Illinois

INTERNATIONAL REGISTER CO.
2626 W. Washington Blvd.
Chicago 12, Ill.

Dept. 81-M

Please send me FREE of charge:

- ☐ Meter Catalog. ☐ Meter Plan Folder.
☐ List of Banks Handling Meter Plan Paper.
☐ 1951 Survey—Dealer Use of the Meter Plan.

Company
My Name
Street
City..... Zone..... State.....

the huge industrial market
is now open to you with

FLOW-COLD*

the compact, packaged
liquid chiller

Tremendous production increases reported by industrial firms maintaining temperatures of coolants in broaching, honing, boring, grinding and finishing operations *with Flow-Cold**. Uniform production and maintenance of closer tolerances result from exact temperature control . . . Plating and anodizing production speeded by controlling solution temperatures with Flow-Cold . . . Steel and aluminum welding production increased through Flow-Cold's cooling action . . . Greater uniformity of welds, fewer rejects.

COMMERCIALLY. . . Here is your answer for central drinking water systems; photographic solution cooling . . . jacket cooling for bakeries, and many other applications.

AIR CONDITIONING . . . Flow-Cold offers you in a compact packaged unit, the ultimate in air conditioning. Home owners, offices, hotels and motels may now enjoy the same *personalized* air conditioning formerly available on large hospital, hotel and office building installations.

Assure your customers a balanced, efficient system with carefully engineered, matching Acme products; Flow-Cold Cooling Towers, Convectors (remote room air conditioners), Finned Coils and Air Handling Units. Over thirty years of experience and top engineering are behind every Acme product. Consult your Flow-Cold wholesaler, Acme's local representative or the factory for further information.

*TRADE MARK



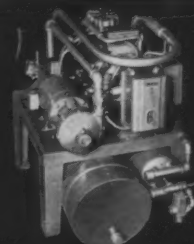
Acme INDUSTRIES, INC.

Dept. CF

JACKSON, MICHIGAN U.S.A.

Circle No. 28 on Reader Service Card for more information

AUGUST, 1951 • COMMERCIAL REFRIGERATION



FLOW-COLD Liquid Chiller



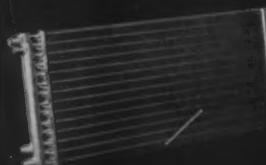
FLOW-COLD Cooling Tower



ACME Convector
(Remote Room Air Conditioner)



Suspended Air Handling Unit



Finned Coils



Century PROTECTED MOTORS

Let You Forget About Atmospheric Hazards

Shown here are four basic types of Century Protected Motors which are designed to resist the dangers of hazardous atmospheres. A properly selected Century motor—with the right protection—is the ideal combination for a long life of satisfactory performance.

- 1 Open Protected**—Form J, general purpose motor—meets the needs for most installations where operating conditions are relatively clean and dry. The top half of the motor frame is closed to keep out falling solids or dripping liquids.
- 2 Splash Proof Motor**—gives the necessary protection where plants must be washed down—keeps water out of the motor even when a hose is applied directly on the frame. It also provides protection

against rain, snow, sleet and ice for outdoor installations.

- 3 Totally Enclosed Fan Cooled Motor**—protects against dusts, mist or fog that might be detrimental to the vital parts of the motor. The inner frame protecting the motor is sealed to keep out harmful matter.
- 4 Explosion Proof Motor**—protects against atmospheres charged with explosive dusts or gases. They carry Underwriters' label for specific kinds of hazards.

Century builds a complete line of alternating and direct current motors in a wide range of types and kinds—in sizes from 1/6 to 400 horsepower.

Specify Century motors for all your electric power needs.

Century Electric Company is celebrating its 50th year in the electrical industry.



CENTURY ELECTRIC COMPANY 1806 Pine Street • St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

Circle No. 29 on Reader Service Card for more information
and AIR CONDITIONING • AUGUST, 1951

DEFROST AUTOMATICALLY

35° F

in this refrigeration range
and higher

24° F

with **TP***

T-P*... *Time-Pressure defrosting... is *needed and wanted* by every owner of meat display cases, self-serve cases, reach-in boxes and other refrigeration equipment maintaining temperatures from approximately 24° to 35° F. and higher.

And no wonder! T-P* *automatically and correctly varies* the defrost period as required... no more annoying problems to determine length of shut-down time which fluctuates considerably with load and weather conditions. Yes... T-P* *avoids unnecessary* shut-down time by stopping compressor *only* long enough to defrost... **NO LONGER**... and does it *automatically!*

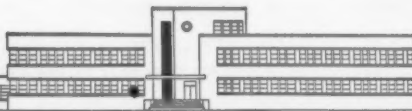
The operation of the PENN Series 325 Time-Pressure Defroster is simple. At predetermined intervals a synchronous timer stops the compressor. Then, when defrosting is completed, rising back pressure in the system automatically starts the refrigeration cycle.

Simple, compact and convenient to mount and wire, the Series 325 is easy to sell. Learn how you, too, can cash in on extra sales and profits... ask your wholesaler or write **Penn Electric Switch Co., Goshen, Indiana**. Export Division: 13 E. 40th Street, New York 16, N. Y., U.S.A. In Canada: Penn Controls Limited, Toronto, Ontario.



Interior (above) and exterior (right) of Type 325. Timer can be set for one to eight "off periods" every 24 hours. Length of "off period" varies automatically with the frost condition of the coil.

PENN



AUTOMATIC CONTROLS

FOR HEATING, REFRIGERATION, AIR CONDITIONING, PUMPS, AIR COMPRESSORS, ENGINES, GAS RANGES

Circle No. 30 on Reader Service Card for more information

AUGUST, 1951 • COMMERCIAL REFRIGERATION

NOT ENOUGH CABINETS in the nation's retail food stores to keep pace with the expanding production of frozen foods, says the magazine *Quick Frozen Foods* in its June issue. Store equipment distributors, the magazine says, although they have built up cabinet sales satisfactorily in some areas, by and large aren't doing the job well on a nation-wide basis. Frozen concentrates (juices) now on the market are three times those of 1949, and fruit and vegetable packages have increased (by brand and variety) by almost 25% over 1949, it is reported. "The (frozen food) industry itself, whether it likes it or not, will eventually have to take the bull by the horns and work out satisfactory cabinet deals", the magazine asserts. How about it, you commercial refrigeration dealers—are you going to let this happen because of a lack of sales effort on your part? From the sound of things, the frozen foods people aren't going to stand still very much longer. And you can't say you haven't been warned.

SOMETHING DIFFERENT IN VENTILATION is being used in the new system recently installed in the new chamber of the House of Commons in London. Air is introduced first from one side and then from the other. The change-over is automatic, and it is expected that the time-cycle will be of the order of three to ten minutes between reversals. It is believed that this will create sensations of "freshness" which a continuous air movement in one direction could not achieve. Tests showed that air entering from both sides simultaneously produced very unstable conditions where the two streams impinged.

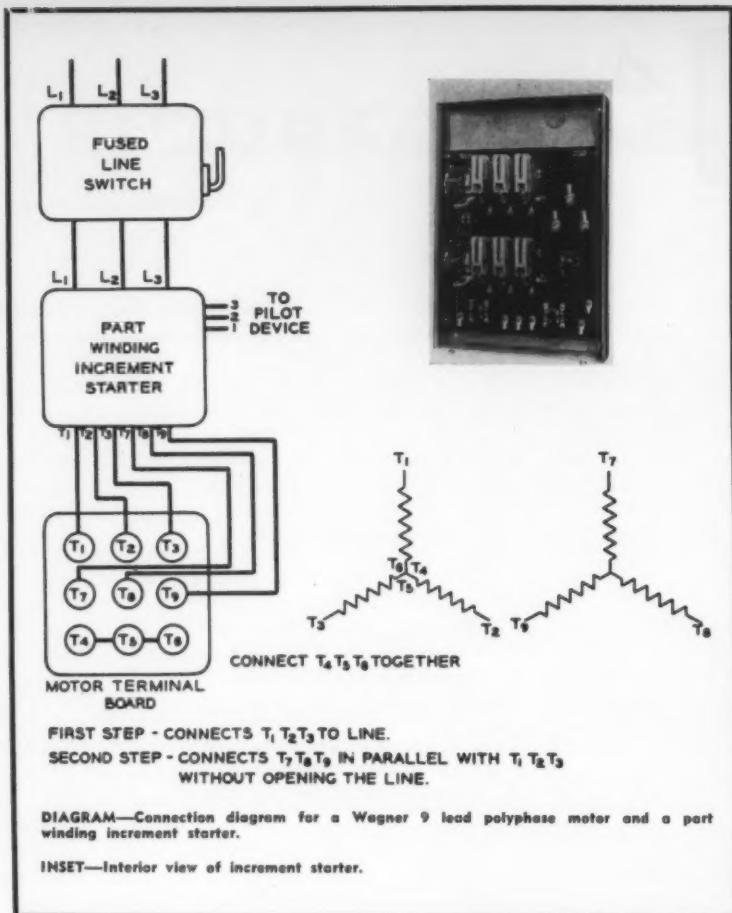
THE FROZEN FOOD LOCKER INDUSTRY is in a position to render valuable service in an emergency because of the wide distribution of its processing facilities and storage stocks, according to two reports issued recently by the U. S. Department of Agriculture. The reports, prepared by the Farm Credit Administration's L. B. Mann and Paul C. Wilkins, say that locker plants can be useful in minimizing demand on overburdened transportation facilities, in saving critical packaging materials like tin and aluminum, in utilizing available small town labor, in holding down excessive food distribution costs, and in conserving and storing home-grown perishable foods for local distribution and consumption. The 11,442 locker plants in the U.S. on Jan. 1, 1950, were serving 3.9 million locker patrons and about 440,000 home unit owners not renting lockers, a total of over 16,000,000 persons.

Starting in September . . . a new feature —

"THE HEATING SIDE of air conditioning"

RECOGNIZING the increasing interest of refrigeration men in commercial and industrial applications of heating equipment as a desirable enlargement of their present activities, we are inaugurating this new Department as a reader service.

It will contain practical, down-to-earth information on the basic components of various types of heating systems, and valuable tips on how to solve many of the problems—merchandising, installation and maintenance—that the refrigeration man meets in this important field. . . . Watch for this New Feature in September **COMMERCIAL RE-FRIGERATION**.



By C. P. Potter

Chief Engineer, Electrical Division
Wagner Electric Corp.

THE equipment first used for starting motors was extremely primitive and usually consisted of an open type, manually operated knife switch provided with fuses, and connected to wiring of the knob-and-tube type. It is obvious that such an installation was hazardous to the operator and did not properly protect the motor or the driven machine. Most of the hazard to the operator was eliminated by enclosing the switch and putting the wiring in conduit, but the motor was still unprotected, because ordinary fuses which are large enough to carry the starting current during the period of acceleration are too large to protect the motor against overload or single phasing.

Some of this difficulty may be overcome by using fuses which have a time-lag, and will carry a relatively heavy current for a short time, but the enclosed knife switch still has the disadvantage of remaining closed in case of power failure, thus starting the motor without warning when power is resumed. Furthermore, it is usually not convenient to locate starting switches where the machine operator can reach them, especially on installations equipped with a great many motors.

The various disadvantages of the ordinary knife switch led to the development of the magnetic switch, which as the name indicates is operated by an electro-magnet energized through a pilot circuit. The magnetic switch is closed by means of a "start" button which closes the pilot circuit and opened by a "stop" button which opens the pilot circuit. This type of switch will, of course, open automatically in case of power failure.

Two overload relays, in two of the three phases of a three-phase motor, are also connected in the pilot cir-

STARTING POLYPHASE SQUIRREL-CAGE MOTORS

A discussion of the various full voltage and reduced voltage starting methods that have been developed, including part winding full voltage increment starting which has become quite popular during recent years because it provides a low-cost means of starting squirrel-cage motors with little line disturbance

cuit, so that excessive current drawn by the motor opens the switch and disconnects the motor from the line. The overload relays are of two general types—magnetic and thermal. Magnetic type relays consist of electromagnets carrying line current and having movable cores whose motion is opposed by dash pots. When the current becomes abnormal the cores reach their maximum travel, break the pilot circuit and open the switch. Magnetic type overload relays reset themselves automatically.

Thermal type relays have heater coils, which carry the line current and are arranged to melt solder or operate bimetallic strips which hold spring operated contacts together. When the current reaches a predetermined value, the heater coils produce a temperature high enough to melt the solder or actuate the bimetallic strips, the contacts separate and the switch opens. Ordinarily, the solder type relays must be manually reset although they may be constructed for automatic resetting. The relay which utilizes the bimetallic strips resets automatically.

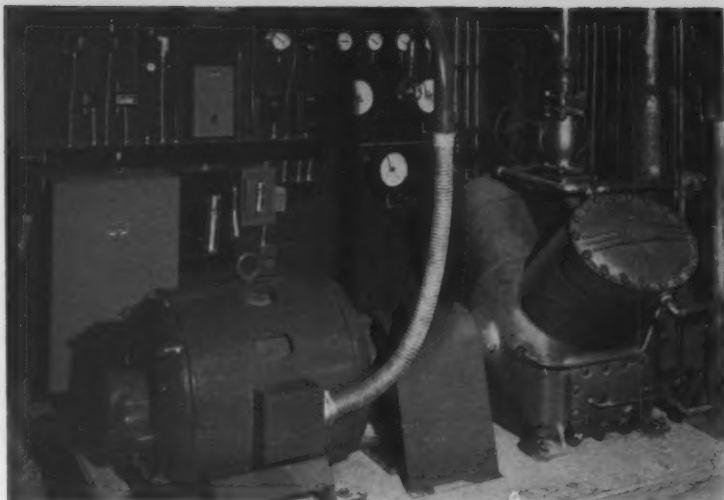
It is quite evident that full voltage starters would be used on all installations if there were not certain limitations. In the first place, the motor must be strong enough mechanically and the coils must be well enough braced to withstand the stresses produced by full voltage starting. Most modern motors comply with these requirements. Next, the driven machine must be able to withstand the full starting torque of the motor, without slipping or throwing belts or producing other abnormal conditions. Finally, the locked rotor current of the motor must not exceed the limitations imposed by the power company.

Full Winding Reduced Voltage Starting

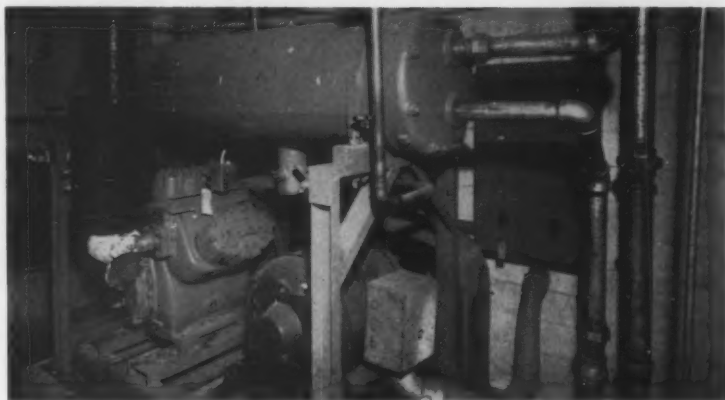
Full winding reduced voltage control has been commonly used when the locked-rotor current or starting torque must be reduced to meet the power company's requirements or to suit the driven machine. With this type of control the voltage applied to the motor terminals is reduced by the use of an intermittent rated auto-transformer or by primary resistors.

It should be remembered that when machines which require extremely

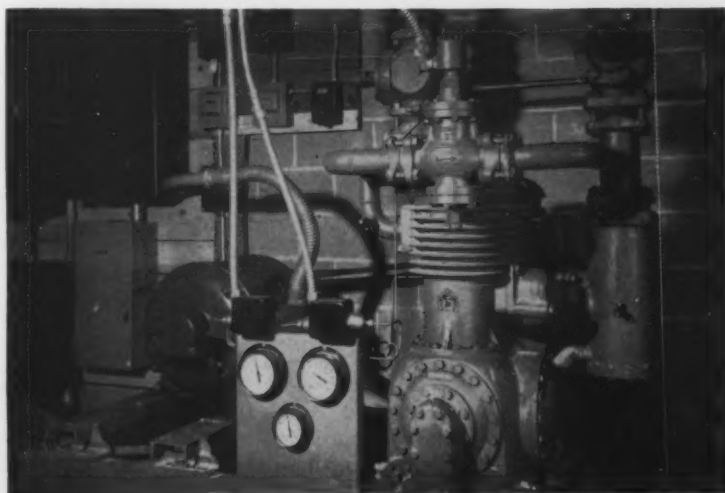
Continued on page 63



ABOVE—In this air conditioning installation in First National Bank Bldg., Kansas City, Mo., a four cylinder compressor is driven by a 100-hp normal torque squirrel-cage motor started by the part winding full voltage increment method.



ABOVE—A 50-hp high torque squirrel-cage motor with increment starter drives the compressor in this air conditioning installation in the Delange Office Bldg., Houston, Tex. BELOW—This four cylinder compressor is driven by a 50-hp high torque motor with increment starter. Installation is in Royal Bowling Alley, Kansas City, Kans.





TRANSPARENT DUCT (arrow) permits tower operators to see through it. WINDOWSILL DUCT (arrow) is low enough so operators can see over it. Both systems give these airport control towers proper air distribution without interfering with the 360-degree visibility they must have.

Two ways of solving the air duct problem in

CONTROL TOWER COOLING

AIRPORT control towers, whether at military or civilian fields, invariably are "heat traps" in hot weather because they must, by the very nature of their function, be completely exposed to the elements. Also, no matter how well the roofs of these towers may be insulated, their glass walls encourage the building up of terrific heat loads.

Air conditioning, of course, is the obvious answer. But this air conditioning must be done in such a way as not to obstruct in the least the 360-degree visibility which control tower operators must have in order to safely direct airport traffic from all points of the compass.

Engineer Bob Howard of Cincinnati Air Conditioning Co. circumvented this problem neatly when designing cooling installations for Lunken Field and the Greater Cincinnati Airport under contracts awarded to this firm by the Civil Aeronautics Authority.

In both cases a standard 5-ton water cooled Carrier packaged air conditioner was utilized to provide the required cooling capacity. In each instance, however, ingenious handling of the ductwork was required to provide the proper air distribution without obscuring the visibility.

At Lunken the problem was solved by splitting the unit in half and setting the fan section on the control room floor in such a way that the top of the section came to approximately the same height as the banks of radio transmitters which flanked it.

The air distribution duct for this system was run around the top of the control room at ceiling level, with three separate outlet grilles providing even air distribution throughout the entire control tower enclosure.

And here's where all of engineer Howard's ingenuity was required. For if a regular sheet metal duct had been run to connect the fan section of the conditioner unit with the over-

head ductwork, a considerable degree of the operators' vision would have been blotted out. To avoid this problem, a section of "Plexiglas" clear plastic duct was fabricated and installed so that actually the tower operators look through the duct rather than around it.

Recognizing the fact that dust and dirt eventually will collect in the ductwork of any air conditioning system, and realizing that in this particular case such accumulation would tend to cloud the transparency of the plastic duct, the contracting firm arranged for a slip fit on this short duct section so that it could be lifted up slightly from the fan section of the conditioner and swung forward sufficiently to permit cleaning of the inner duct walls.

Needless to say this short section of plastic duct was extremely more costly than a regular sheet metal duct of the same length, but inasmuch as it

Continued on page 52

DISTRIBUTION BROADENED ... QUALITY PROTECTED for SUNISO® REFRIGERATION OILS

Only in Refinery-Filled & Refinery-Sealed Containers

From now on, refrigeration and air-conditioning supply houses and service organizations will be supplied genuine Suniso Refrigeration Oils *only in packages filled and sealed at the Sun Oil Company refineries*. Sun has established this policy in order to make absolutely certain that the trade receives Suniso Refrigeration Oils with all their superior characteristics unimpaired.

The Suniso Trade-Mark Is Your Protection

The presence of the registered Suniso trade-mark on the container is your assurance that you are getting genuine Suniso Refrigeration Oil. The Suniso name on the can or drum is your guarantee of long life-stability, non-waxing characteristics, high dielectric strength, low pour point, and precisely maintained viscosity.

New Distributor for Refrigeration Supply Houses

VIRGINIA SMELTING COMPANY has been added to the sources from which wholesalers and supply houses can get genuine Suniso Refrigeration Oils. This means many new distribution points from which Suniso can be obtained in the United States, Canada and throughout the world.

Special Significance to Manufacturers

Leading manufacturers of refrigeration and air-conditioning equipment charge their new compressors with Suniso. The addition of VIRGINIA SMELTING COMPANY as a Suniso distributor assures these manufacturers of adequate supplies of Suniso in the hands of service organizations everywhere. This means manufacturers' equipment can be properly serviced with the specified grades of Suniso. Equipment failures caused by inadequate oils can be avoided.

WRITE NOW FOR PARTICULARS

If you're interested in more information about Suniso Refrigeration Oils, write to Dept. RI-8, Sun Oil Company, Philadelphia 3, Pa.

SUNISO REFRIGERATION OILS
"JOB PROVED" THROUGHOUT THE INDUSTRY





GENERAL MANAGER Gene Harris demonstrates his firm's sales-getting techniques by telling a customer how he can profit by the purchase of a modern commercial refrigerator and pointing out how the meter plan will help him pay for it out of the extra volume it brings.

HEADQUARTERS of the thriving O'Bannon Co. shows how big a business can be built by serving the needs of the little customers.

Show the "little fellow"
two things—

- (1) how he can profit by
buying your equipment
- (2) how he can pay for this
equipment without strain-
ing his finances

—and he will help build you
a thriving business.



\$350,000 Worth of "Little Customers"

TELL THE *Profit Story* to the little fellow and make it easy for him to buy and pay for commercial refrigeration and you'll still be in business 26 years from now—and going strong."

So says Gene Harris, general manager of M. E. O'Bannon Co., Tulsa, Okla. O'Bannon, now retired, started his business just 26 years ago with a determination to go after "the left-overs" and treat them right. He built the business on that basis.

"Too many of us keep yearning for the big deals, and get hurt in the process," Harris declares, "when the surest way to build a good commercial refrigeration business is to seek out the little fellow and take care of him. That's the way we do it.

"There's not a single account in eastern Oklahoma too small for one of our seven salesmen to call on. That guiding principle has built our sales to a \$350,000-a-year volume, and we consider this good business."

So closely is this policy of taking care of the little man followed that when Harris makes his weekly reviews with salesmen he has a policy of carefully checking the cross-roads communities in each salesman's territory. Woe betide the salesman who spent his time hopping from big town to big town.

"We run this business on the theory that it's more profitable for us to sell and take care of 100 little guys than it is to make one big sale," Harris says. "Not only because competition

is generally less and throat cutting not so great, but also because when you sell the little man you build repeat business—and that is what will keep your business alive.

"Make the big sale through stiff competitive bidding and that's all you've made, for the next time the man is ready to buy you have to go through the same thing all over again."

The basis of Harris's selling program among the "little men" is his *Profit Story*. Every piece of commercial refrigeration is sold along the same lines. Quality, trouble free operation, etc., are all used as selling points but the *Profit Story* is the one upon which the major selling effort is made.

"It's very simple, yet it's the most important point of all to your prospective customers," Harris explains, "for it is nothing more than showing them how it will be more profitable to their business operation to buy the unit you are trying to sell than to get along without it. We never talk in terms of price or cost of the unit—we talk in terms of how much more profit he can make from his business if he buys that particular unit."

Point Out Profits

"If it's a produce case, we show him how he is wasting profits with old and obsolete equipment. We've made studies of this in our own business and we cite abundant examples from among our customers whose loss of produce was cut measurably through installation of modern equipment."

"We use the same *Profit Story* argument on every type of equipment. Every dealer knows all of this, but not enough salesmen use it in their work. Our own sales picked up considerably some years ago when we started using the *Profit Story* as our main sales argument. It's awful hard for any prospect to turn down a suggested purchase when the salesman can show him how the additional profits he can make will quickly pay for it."

Meter Selling Works

This basic selling policy coupled with the use of a meter system and a somewhat different handling of meter collections has given the O'Bannon firm a position of leadership among small refrigeration users of every kind throughout eastern Oklahoma. The use of meters has been a big sales booster for the Tulsa firm which now has 336 of the meters out.

"We've worked out a system of using the meter plan which has been so successful that we wouldn't think of doing business without them now," Harris explains.

"To begin with we never mention meters until the sale is practically closed. Of course we always try to sell on cash or conventional payments too, but we would rather sell on the meters when we can't make a cash sale."

"One thing you have to remember is that the meter plan in itself doesn't solve all of your credit problems. The

Air Conditioned City

HOUSTON, Tex., which claims the title of "best air-conditioned city" in the United States, cites the following figures for 1950 and early 1951 as proof of its right to continue that claim:

During 1950, a total of 19,125.5 tons of air-conditioning equipment were added to the 118,748 operating in Houston, making the total 137,872.5 tons as of the first of 1951. The total does not include some additional 9,300 tons now under construction, mostly in five large buildings.

The 1950 installations surpassed those completed in 1949 and added 10% to the previous airconditioning installed in Houston since the first systems were completed in the city.

Residential air conditioning was the No. 1 item in classification totals, with installations totaling 7,441 tons during 1950—four times larger than 1949, and 2,016 tons greater than in the four years prior to 1949, the previous top year in residential air conditioning.

Department stores in 1950 installed 2,326 tons, just shy of the 2,580 tons which had been installed during all three of the previous years. The University of Houston accounted for most of the 2,209.5 tons of air conditioning installed in educational buildings. Food stores ranked fourth in new equipment, installing 1,102 tons to beat the 775.5 tons installed by Houston churches. Since the end of World War II, more than 3,250 tons of air conditioning has been installed in churches.

Individual offices added 990 tons, and office building systems totaled 882 tons. Banks added 500 tons and hotels 400 tons.

Other classification totals included: amusement centers, 25 tons; automobile sales room, 56; barber and beauty shops, 73.5; candy stores, 5; clubs, 177.5; cocktail lounges, 55; drug stores, 193.5; florist's shops, 31; funeral homes, 30; furniture stores, 112.5; hardware, 120.5; hospitals, 61; industrial, 460; interior recerator, 5; jewelry stores, 13.5; liquor stores, 28; men's stores, 67.5; miscellaneous retail stores, 124; restaurants, 593; theatres, 180; variety stores, 47.5; warehouses, 35; and women's wear, 94.5.

The figures are from *Magazine Houston*, official publication of the Houston Chamber of Commerce, and are based on sales data obtained from Houston Light & Power Co., building permits, and air conditioning equipment contractors and distributors.

only angle with us is that we know the customer will have his payment in full and on time with the meters. We still maintain the same rigid credit policies."

The O'Bannon firm, when the account is half paid out, gives the customer the option of paying off the notes and saving interest charges. "Many customers appreciate this," Harris says, "for while they were not able to have sufficient funds to pay off the whole amount they can often have what it takes to pay off such a balance."

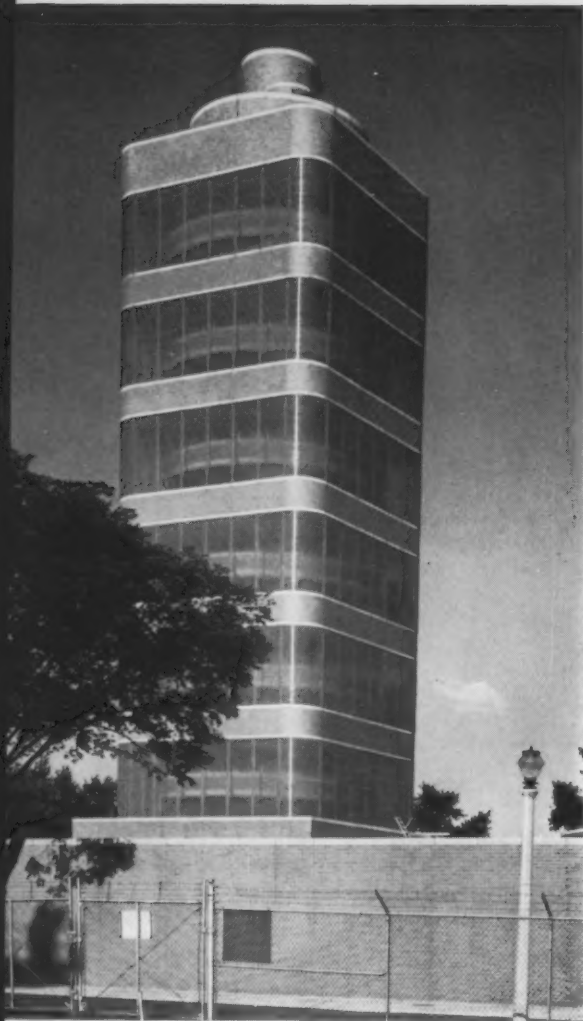
Another factor that has made meters a success with the O'Bannon firm has been its practice of having a thoroughly qualified serviceman make collections.

"This actually has decided some customers on asking for meters," Harris says, "because the serviceman not only makes collections but checks the unit every time he does so and makes any minor adjustments or repairs without cost. Our customers know that the meter plan thus assures them the unit will be taken care of as long as the meter is there. We've found it really pays off."

Harris also has developed a unique sales commission plan that is bringing top results. Salesman's commissions increase as the amount of trade-in decreases.

On the sale of a \$1,000 box, for example, 10% or \$100 is deducted for service, maintenance, installation,

Continued on page 83



AIR CONDITIONING is an integral part of the construction of this unique research tower built by the Johnson wax company.

MODERN DESIGN

An outstanding example of a new concept of functional architecture, this new research tower literally is built around an air conditioning system which provides close control of air conditions on each individual floor

THE INFLUENCE of functional design in modern industrial architecture is exerting a definite impact on the design of air conditioning systems to meet the requirements of these new construction concepts.

An outstanding example of this new approach to air conditioning which in some cases is necessitated by present-day architectural design is the year-around installation in the new research building of S. C. Johnson & Son, Inc., at Racine, Wis.

Designed by the eminent architect, Frank Lloyd Wright, the recently completed 15-story research tower is built on the cantilever principle, with a reinforced concrete central core as the sole support for all of the floors.

Floors are arranged in pairs, with

a circular mezzanine-type story between each pair of square ones. Except for narrow bands of masonry at alternate, square floor levels, the walls are entirely of glass. Glass tubing is used for the construction of the outside wall, with the inner wall being of plate glass.

Because this unique construction provides for vertical risers to be contained only in the central supporting shaft, much of the air-conditioning equipment actually is an integral part of the construction.

In addition to the air-conditioning supply shaft, there are four other separate risers—one each for the elevator and stairway and two for air-conditioning exhaust. The air-conditioning and heating shaft also con-

tains the nearly two dozen supply pipes that service the building, but these are around the perimeter of the circular shaft and separated from the fresh air flow by sheet metal partitions. With mutually supporting walls, the five separate shafts form an irregular oval shape.

Conditioned air, chilled by the 400-ton York centrifugal refrigerating compressor in the basement, or heated by controlled copper steam coils, reaches all zones on each story.

Outside air is heated to 65 F. in winter and is cooled to 60 F. in summer. From the central shaft, it enters the plenum between the floor and ceiling of each level through two Modine reheaters, one on each side of the tower. The reheaters are controlled by individual thermostats on each story.

After being warmed to the required temperature, the air reaches each working area through a combination electric lighting and air delivery diffuser. These fixtures, 24 in each ceiling and each supplying 65 cfm, were designed by Wright and manufactured especially for Johnson's.

Air is exhausted at the rate of 1300 cfm through two specially equipped grilles on each floor. Each 14 x 14-inch grille has an automatic damper,

makes the difference

controlled by a very sensitive static pressure regulator that slows or shuts off entirely the exhaust air when the difference between outside and inside pressure varies more than .01 inch of water.

This will be a common occurrence in the building, because on many of the stories there are fume hoods for the chemists and engineers to use in their experiments. Special exhaust fans connect these hoods with the exhaust ducts to insure that all contaminated air and noxious odors generated in them shall be vented directly out of each area. Obviously, the air exhausted by a fume hood, averaging about 750 cfm in each case, would affect the pressure in the room if the regular exhaust grilles were not equipped with automatic dampers.

The two exhaust grilles in each room (and the fume hoods) vent directly into kidney-shaped ducts on opposite sides of the central core. Two exhaust fans in the pent house machinery room discharge the exhausted air through the roof.

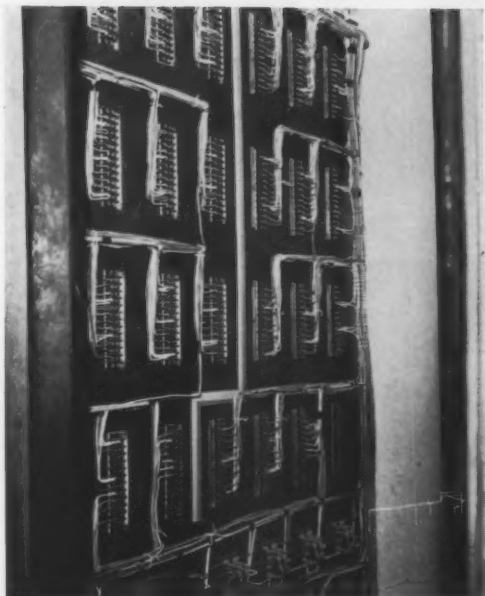
Because of the general nature of the scientific work done in the tower, all air supplied is taken from the outside and none is recirculated.

There were no serious installation problems occasioned by the architecture of the building because the nature of the design incorporated plans for the air-conditioning system.

The air-conditioning and service supply shaft actually is functionally most important as part of the central core that supports the floors. The same is true of the two exhaust shafts. If the air-conditioning were shut down and the service pipes removed, the shafts would still be needed to hold up the floors.

Continued on page 52

LOOKING more like the business end of either a telephone switchboard or a pin-ball machine, this actually is the temperature control panel for the air conditioning system in the administration annex. Individual thermostats in each office all lead to this panel. Electric impulses received here control the mixing dampers for the separate supply ducts that lead to each office.



REMOVABLE panels on each floor level of the research tower provide easy access to the sheet metal ducts that connect the central air conditioning supply shaft with the reheaters in the plenum of each floor. Note the hot water pipes for the reheater on each side of the duct.



about PEOPLE

James F. Kinney, C. P. Pestow and A. B. Ralph have been named



J. F. Kinney



C. P. Pestow



A. B. Ralph

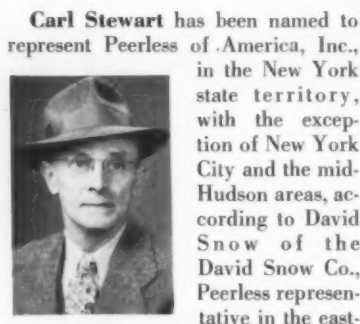
to sales positions with Penn Electric Switch Co., according to R. H. Luscombe, general sales manager. Kinney, who has been named manager of Penn's district office in Cleveland, formerly

was a sales engineer at the Goshen, Ind., plant; Pestow, named sales engineer in the company's Philadelphia district office, also formerly was a sales engineer at the factory; and Ralph, manager of the newly established Pittsburgh district office, formerly was with Surface Combustion Corp. The new Pittsburgh office is at 704 Kewanna Ave., Mt. Lebanon.

Edwin H. Price has been appointed Pacific Coast district manager for Manning, Maxwell & Moore, Inc., succeeding Newton P. Selover, who becomes director of export planning for the company.

New district sales manager appointed by Servel, Inc., are: **Leonard W. Headley**, who has been named manager of the Evansville, Ind., sales branch, covering southwestern Indi-

ana, southeastern Illinois, western Kentucky, and three Tennessee counties; **Michael P. Noll**, who succeeds Headley as district sales manager at Kansas City, Mo.; and **Robert R. Clarke**, who succeeds Noll as district sales manager at New Orleans. Clarke formerly was district sales manager at Detroit.



Carl Stewart has been named to represent Peerless of America, Inc., in the New York state territory, with the exception of New York City and the mid-Hudson areas, according to David Snow of the David Snow Co., Peerless representative in the eastern territory. Stewart has had 27 years' experience in the refrigeration field, as an employee of Kelvinator, in his own service business, and as a wholesale jobber. In addition to Peerless of America, Stewart also represents Fine Products Co. and Heatron, Inc.



Appointment of **Lloyd Fox** as commodity manager wholesaler sales, has been announced by George D. Potter, general sales manager of Wolverine Tube Div. of Calumet and Hecla Consolidated Copper Co., Inc. Fox will assume the duties formerly handled by Buel Devine, and will handle all sales of Wolverine products to wholesalers. His headquarters will be the company's general sales office, 1850 Guardian Building, Detroit.

Stewart E. Lauer, president of York Corp., manufacturers of air



J. R. Hertzler



J. K. Loudon



E. P. Vanderwicken

conditioning and refrigerating systems, has announced the election to the board of directors of **John R. Hertzler**, vice president and general manager; **J. Keith Loudon**, vice president and assistant to the president; and **E. P. Vanderwicken**, vice president and treasurer. According to Lauer, these new directors will fill vacancies caused by the death of Walter Geist, former president of Allis Chalmers and by the resignations of John S. McMartin and Llewellyn Williams, veteran board members.



Bill Plowfield has been appointed to handle distributor and national user sales of the pre-fabricated sectional storage and freezing rooms manufactured by Reco Products Div. of Refrigeration Engineering Corp., Philadelphia. Plowfield formerly was director of sales for the General Utilities Corp. of Philadelphia, and Phipps Products, Inc. He will direct Reco sales in eastern Pennsylvania, South Jersey, Delaware and part of Maryland.

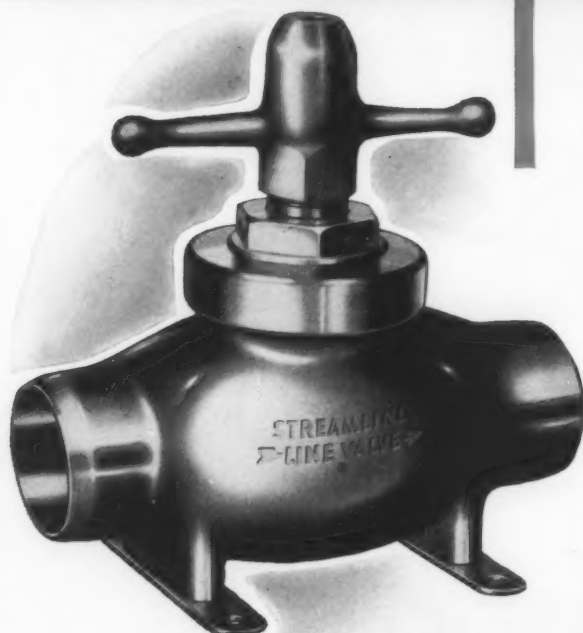
W. Paul Jones, president of Servel, Inc., for the past two years, will also become chief executive officer of the company, it has been announced.

Continued on page 77



*a good tip for
wise refrigeration men:*

**Always use
dependable quality built
MUELLER BRASS CO. parts.**



**8 good reasons why it pays
to stock, specify and install
Mueller Brass Co. STREAMLINE
Globe Type Valves.**

- Positive shut-off always assured with the amazing nylon stem seating disc.
- "O" ring provides a permanent, positive seal against any loss of refrigerant.
- No bolts — no flanges — no gaskets.
- New design eliminates excessive weight.
- Can be disassembled and ready to solder into the line in 10 seconds.
- Stem of corrosion resistant aluminum bronze.
- Highly polished red bronze body.
- Sizes $\frac{1}{8}$ " to $4\frac{1}{8}$ " O. D. Order from your refrigeration wholesaler.



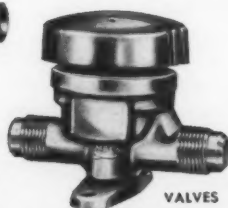
WROUGHT COPPER FITTINGS



FLARE FITTINGS



LIQUID INDICATORS



VALVES



DRIERS AND FILTERS

**Have these STREAMLINE products
on hand for every job where you
want dependable performance.**



Write for catalog R-151
describing complete line
of STREAMLINE refrigeration
products.

STREAMLINE refrigeration
products are individual
and multiple packaged for
complete protection.

MUELLER BRASS CO. PORT HURON 12, MICHIGAN

Circle No. 32 on Reader Service Card for more information
and AIR CONDITIONING • AUGUST, 1951

Editor's Note —

HAVE you ever had the opportunity to look over a sales manager's shoulder, and see the steps that are necessary as he "tailors" his merchandising program to keep it in step with a vastly-changed sales situation?

Well, here is just such an opportunity. When Uncle Sam "pulled the cork" on critical materials, manufacturers of many refrigeration products—water coolers among them—had to do an about-face on some of the markets on which they formerly concentrated their merchandising efforts, and plan for sales from other sources.

The planning outlined here by the Sales Manager of Westinghouse's Electrical Appliance Specialties Department is typical of that which all manufacturers so affected had to adopt, in greater or less degree. We believe you'll find it interesting—and that it will help you to appreciate that manufacturers, too, have their "problems".

You have to change
your merchandising methods
when you're

SELLING FOR UNCLE SAM

BY H. F. HILDRETH

Sales Manager, Electric Appliance Specialties
Westinghouse Electric Corp.
as told to Frank R. Otte
Vice President, Fuller & Smith & Ross Inc.

WHEN the enemy sits in *your* lap, you can choose to cash in the chips or fight it out. The American way of business is never on the offensive. That was our mood in facing a production cut on water coolers, and we found a way to stay in business without chiseling on the defense effort.

The first step obviously is calling in your "Intelligence Section" to make an estimate of the situation. We believe that *intelligence* is one of the functions of our advertising agency. It went to work on the problem.

To arrive coherently at our solution, let's first examine

our past sales procedures. During preceding years, Westinghouse had built an enviable water cooler business through the efforts of our apparatus and specialty salesmen. This is a technically-minded group which has the *know-how* to wrestle with the big industrial stuff such as elevators, conveyors, cooling systems and all kinds of electrical gear that plants, institutions and office buildings require. They did such a good job in keeping up with America's industrial expansion that this market by 1947 became pretty well saturated.

From 1947 to 1950 our selling efforts turned to the Main Street Market. This is the little fellow who buys one or two water coolers rather than carload lots like the Henry Fords and other big users. To command this market required a dealer organization. This was consolidated by our factory representatives, for obviously the specialty boys can't take the time for small package sales.

It was rough going at first, but with adequate advertis-

ing and promotions we sold the type of dealer, who, in turn with our co-operative assistance, built up a nice trade with the beauty parlors, the storekeeper, the small offices and all that plethora which the ad man likes to call the mass market. Deals, displays, literature and co-operative advertising did the trick to supplant the waning industrial market. And so, 1950 ended a happy profitable year which looked like a long-time continued boom until the Chinese went boom, boom in Korea!

"Intelligence Section" Analyzes Objectives

The "Intelligence Section" took a broad, but hard look at our previous marketing efforts and came up with the idea that we had too much neglected one segment of the potential trade which now was mighty important to the emergency program—the architects, the guys who must build sufficient buildings required to manufacture and house sufficient war materials to make Uncle Joe cock-eyed. We summed up the situation as follows: *Material shortages restrict markets except those in these categories:*

- High-Priority Industrial Plants
- Military Installations
- Schools
- Hospitals
- And Similar Institutions

This market was not entirely unknown by our management, but it certainly had not been overcultivated. Our reasons for this were fairly obvious. The architect market is a highly specialized field; a profession of over 10,000 principals throughout the United States. We had never had the time to separate the architects who build housing units which don't use water coolers, from those who build units which do use water coolers.

Direction of Attack Is Planned

We had assumed that management generally specified which water cooler brand was to be installed. A corollary to this assumption was that we would get our share of this market by advertising to, and personally wooing, management. That is where we were wrong. For instance, a checkup proved these substantial facts: The *type* of water coolers selected is determined 76% of the time when the plans and specifications are drawn up. The actual *brand* of water coolers selected is determined 71% of the time by the plans and specifications themselves.

Our "Intelligence Section" then went to the architect and needled out *who* of his personnel is the major factor in selecting water coolers in particular, and all other big building equipment requirements in general. The answer was as follows: "When it comes to the over-all water cooler selection, the Specification Writer, who is usually an architect, is the KEY FACTOR. But the others (the architect's client, the architect principal, the designer, the consulting engineer and the subcontractor) must also be sold."

So, to know the characteristics of this very important Specification Writer, we move over into his bailiwick and get acquainted. This is important because he, after all, is the purchasing agent for our immediate water cooler sales.

Well, we find he is a good guy but a mighty astute buyer because in the long run his boss, the architect principal, is responsible to his client not only for the blueprints

Continued on page 80

Keyed to a new sales slant, this type of advertising . . .

This double-page spread aimed at selling the architect principal and his associates, and the single page dealer ad also keyed to the Industrial Mobilization theme, typify the slant given the company's advertising to keep in line with the merchandising restrictions imposed by the nation's defense economy.

. . . supplanted this

Previous advertising had been of the straight "product and price" type, like this full page ad which helped build up a strong dealer organization and the one column ad directed at the user in the Main Street Market. Compare the tenor of these ads with that of those above.

OVERHEAD HOODS and fans (below) gather fumes and heat at their source and prevent them from spreading throughout work area.



PORTABLE FANS (above) can be moved from location to location as needed to provide ventilation for "once-in-a-while" jobs.

There's plus profit for cooling contractors
in fields that many refrigeration men ignore.
Look for it in . . .

INDUSTRIAL VENTILATION

AS THE industrial economy and resources of the nation become increasingly directed toward the production of war materials, the air conditioning contractor can substantially identify himself with the country's defense effort by supplying valuable assistance to industry within the scope of his own field of technical knowledge.

In some cases this will mean the complete air conditioning of plants where mechanical cooling is a "must"

for product preparation or employee safety and efficiency. In other cases, however, it will mean the industrial ventilation of plants where mechanical cooling may be unnecessary or impractical.

The contractor who overlooks this field of industrial ventilation in his concentration on the straight air conditioning phase of his business is missing a highly profitable bet for "plus" business.

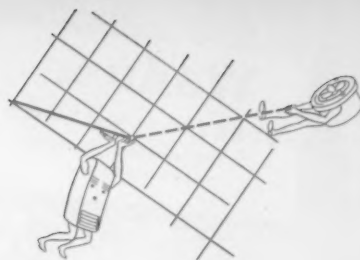
What do you have to know to

recognize the need for this equipment and to sell it as the solution to an often unrecognized problem? In industrial plants, the problem generally requires the consideration of two factors:

1. The removal of unpleasant air (hot, humid, dusty, etc.) for the sole purpose of improving the comfort of building occupants.
2. The removal of noxious, explosive or other dangerous fumes.

You can sell ventilation in the first

MR. CONTRACTOR: You too can boost your volume with jobs like these



case by pointing out that anything which improves working conditions builds up better management-employee relations and ultimately increases production.

Proper air control cuts down worker fatigue resulting in physical and mental alertness. To management this means an increase in efficiency, a decrease in material spoilage, improved production quantities, and fewer costly accidents.

In the second case (dangerous fumes) where ventilation is an important factor, the dramatic need eliminates any requirement for salesmanship. You need only be on hand with the solution when the need arises.

Fumes may be harmful, explosive, obnoxious, poisonous, or corrosive. Collection of fumes in these classes should be as close to their source as possible to prevent their spreading to work areas. Overhead hoods are used where the extracted smoke or fumes have a tendency to rise. Vapors somewhat heavier than air are removed through floor gratings or side-wall openings at floor level.

In the case of explosive fumes, the basic principle is to obtain sufficient air dilution to prevent unsafe concentration or an explosive mixture. Fans for use where inflammable fumes are present should have explosion-proof motors. In the case of corrosive fumes, fans that have been treated with corrosion-resistant paint should be used.

A brief description of a few typical propeller fan installations will suggest to the alert air conditioning contractor any number of sources of this type of business in his own locality.

A large Cincinnati foundry approximately 320 feet long, 60 feet wide, and 50 feet high was faced with a smoke problem.

Because of an accumulation of smoke with a small monoxide content given off by furnaces for several

hours while bringing them up to heat, men on the floor worked under extremely poor conditions. Crane operators found it impossible to work.

Though the building was equipped with ventilators and windows, they did not take off the large smoke content which accumulated quickly and remained trapped in the building for a great length of time.

Several schemes for eliminating this nuisance were devised and many experiments were made, none of which were entirely satisfactory. Finally, 16 36-inch propeller fans were installed, 12 of them in the side walls and four in the skylight. The

result was that good working conditions were secured inexpensively as heat and smoke were exhausted quickly and efficiently from the foundry building.

Grit and dust created by a variety of grinding wheels used in the machine shop caused trouble in the metal fabricating division of a St. Paul company. Foul gas odors and

Continued on page 82

What Price Cooling?

USE of air conditioning proved less expensive than ventilating due to unusual heat conditions in the shipping room of a men's furnishings manufacturing plant in Darby, Pa., United States Air Conditioning Corp. reports.

The shipping room, in the Pioneer Suspender Co.'s plant, is situated over large basement boilers, has three walls of glass, and is divided into aisles by steel stock bins which hinder air circulation. Floor temperatures in the 9,000 sq. ft. room ran as high as 125 F due to heat from boilers below.

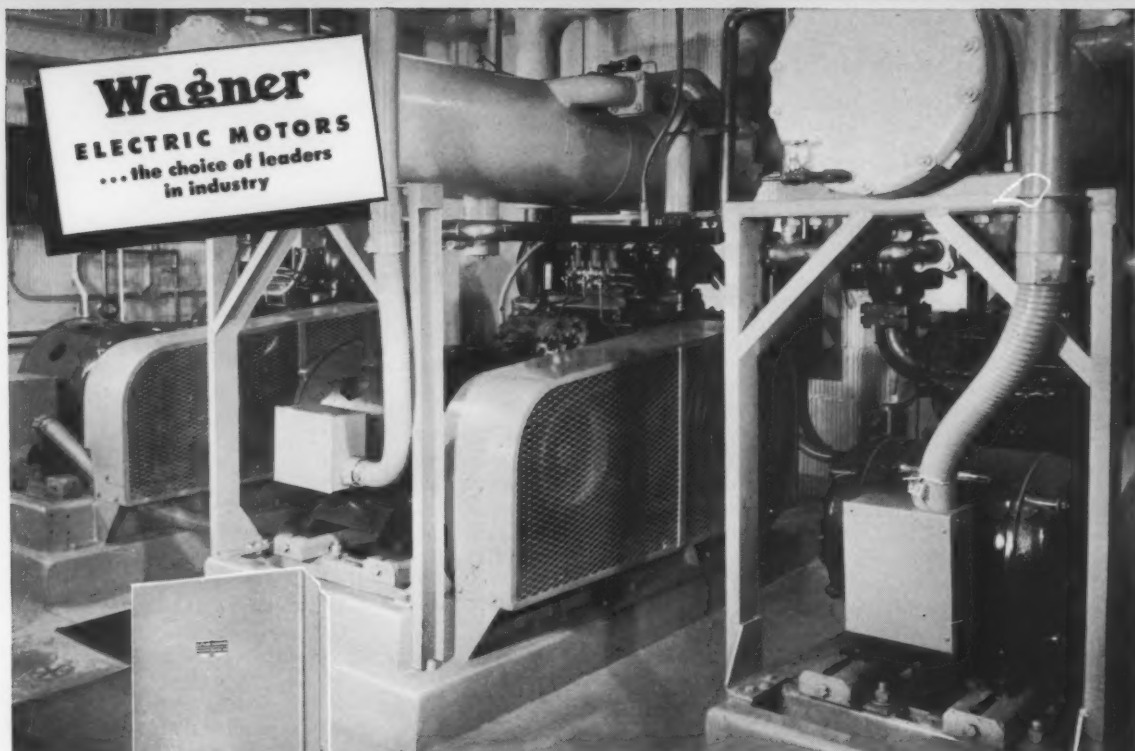
Preliminary design of a ventilating system called for intake as well as exhaust fans, for movement of the tremendous volumes of air necessary to produce satisfactory working conditions.

Calculations showed that an air conditioning system utilizing a usAIRco 30-ton packaged unit could be installed to provide comfort cooling at a cost considerably below the estimate for ventilation, while meeting tight equipment space requirements at the same time.

As designed and installed by Air Conditioning Associates, Inc., Philadelphia, the system places the packaged unit in an adjacent equipment room, with ductwork connecting to the shipping room. Satisfactory air distribution is provided by a grille at each of the aisles formed by the stock bins.

The system utilizes 15% fresh air, obtained through a short duct run from the rear outside wall of the building. Exhaust for the unit's built-in evaporative condenser is also taken to the rear of the building.

The system provides a complete change of fresh air every hour and uses 12 tons of cooling just to overcome the extreme heat load at the floor.



Reduce starting current draw
the economical way
with the **Wagner**
Increment Motor and Starter Combination

On any application where reduced current draw at start is required because of locked current restrictions, you can limit the in-rush of motor current during the starting period with the low cost Wagner Increment Motor and Starter "Package."

A typical installation is shown in the photograph above, where three Wagner open-type general purpose motors rated 60, 100, and 125 hp are driving Worthington air conditioning units in a Minneapolis office building.

The Wagner Motor-Control Package is economi-

cal to install and permits the use of high grade magnetically operated control equipment at a low purchase price. For special requirements, the motor-control combination can be furnished with Wagner normal or high torque explosion-proof motors, splash-proof motors, or totally-enclosed fan-cooled motors as well as with the open type motor.

Why not investigate this Wagner combination today? Write for full information, or consult the nearest of Wagner's 31 branch offices, located in all principal cities.



WAGNER ELECTRIC CORPORATION
6442 Plymouth Ave., St. Louis 14, Mo., U.S.A.

ELECTRIC MOTORS • TRANSFORMERS • INDUSTRIAL BRAKES
AUTOMOTIVE BRAKE SYSTEMS — AIR AND HYDRAULIC

BRANCHES IN 31 PRINCIPAL CITIES

M51-17

NEWS OF THE INDUSTRY

FRED SMITH IS NEW ACRMA HEAD

Fred W. Smith, president of Baker Refrigeration Corp., was elected president of the Air Conditioning and Refrigerating



F. W. Smith

Machinery Association at the annual meeting of the organization recently in Hot Springs, Va.

Widely known for his activity in industry affairs for the past 25 years, Smith formerly was associated with Carrier Corp. and Frigidaire Div. of General Motors Corp. During World War II he headed the Special Equipment Branch of the War Production Board.

Elected as ACRMA vice presidents were C. S. Stackpole, vice president and general sales manager of Airtemp Div., Chrysler Corp., and H. B. Donley, manager of marketing of General Electric Co.'s air conditioning department. G. A. Heuser, president of Henry Vogt Machine Co., was re-elected treasurer.

In addition to the officers, the following were elected to the ACRMA board of directors:

W. H. Aubrey, Frick Co., Inc.; A. J. DeFino, Fedders-Quigan Corp.; Maynard Ford, Parks-Cramer Co.; B. W. Hanson, Schaefer, Inc.; George S. Jones, Jr., Servel, Inc.; S.

JACKES-EVANS TO ENTER VALVE FIELD

Jackes-Evans Mfg. Co., St. Louis, for the past 63 years associated with the heating industry, has entered the refrigerant controls field.

Stanley F. Jackes, president of the company, has announced the appointment of Roger P. Kipp as manager of the new Controls Division. F. M. MacDougall will be chief engineer, and W. P. Myers, Jr., sales manager of the division.

The company is introducing a line of solenoid valves. Design features will include tight seating, high opening pressure in all sizes, a single powerful coil for all sizes and types, valves designed to withstand irregular movement on mobile equipment, and pilot operated valves that do not depend on plunger impact to loosen the valve pin.

Territorial sales representatives, announced by Franklin R. Jackes, vice president and general sales manager, include:

L. K. Wright Co., Knoxville, Tenn., southwest territory; Thomas E. Scott, New York City, New York and New England; M & S Industries, covering Maryland, northern Virginia and southern Pennsylvania; George E. Wilson, Chicago, covering Minnesota, Wisconsin, Iowa, Indiana, and northern Illinois; Mason Emanuels, covering the northwest and British Columbia.

E. Lauer, York Corp.; M. M. Lawler, Worthington Pump & Machinery Corp.; H. F. Lehman, Frigidaire Div., General Motors Corp.; A. B. Newton, Acme Industries, Inc.; A. P. Shanklin, Carrier Corp.; T. E. Smith, Westinghouse Electric Corp.; A. O. Vogel, Vilter Mfg. Co.; and G. E. Wallis, Creamery Package Mfg. Co.

"DETROIT" CHANGES SALES ASSIGNMENTS

A number of changes in sales department assignments have been made by Detroit Lubricator Co., manufacturer of refrigerant flow control valves and other refrigeration controls, according to E. J. Doucet, vice president and general manager of sales.

K. B. Thorndike, vice president, will assume direction of the eastern regional office with headquarters in New York City. He was formerly in charge of the western regional office in Chicago.

F. G. Coggin, formerly manager, Refrigeration Controls Division, becomes assistant general manager of sales.

F. Y. Carter, formerly chief refrigeration sales engineer, becomes manager of the Refrigeration Controls Division.

W. H. Hohmeyer, for-

merly manager of the Heating Controls Division, becomes manager of sales research and promotion.

H. L. Walker, formerly assistant manager of the Heating Controls Division, becomes division manager.

H. Ledyard becomes manager of the Industrial Products Division.

T. C. McKee, Jr., becomes manager of the west central regional office with headquarters in Chicago.

F. J. Kreissl is manager of the east central regional office with headquarters in Pittsburgh.

COAST FIRM MOVES EXECUTIVE OFFICES

International Products Corp., manufacturer of commercial refrigerators and equipment, has recently announced the opening of new executive offices located at 665 N. Berendo, Los Angeles 4, Calif.

RALPH HAYES NEW LEHIGH GEN. MGR.

Frank E. Shumann, President of Lehigh Foundries, Inc. and Lehigh Mfg. Co., has announced that rapidly expanding



R. Hayes

civilian and military demands for products made by Lehigh's combined industries have brought about major headquarter changes in key personnel.

Ralph Hayes, who has been associated with Lehigh Foundries, Inc., in Easton, as manager of the Ordnance Division, will assume the general management, in Lancaster, of Lehigh Mfg. Co., which produces Lehigh "Blue-Cold" open type and hermetic condensing units. Hayes, an engineer with many years of experience, is well known in the refrigeration field and for a long period was manager of the Bowser Refrigeration Co. in Connecticut.

Clayton L. Coulter, who has been general manager of Lehigh's Lancaster plant for several years, is moving to Easton to become assistant to Shumann.

Shumann stated that while the company now has defense orders that amount to several million dollars, mostly prime contracts, there will be no interference with refrigeration production.

WE TAKE CARE OF

Eastern

CONDENSATE

DISPOSAL UNIT



Designed for the air conditioning field, here is a completely automatic, foolproof unit that removes condensate fluids from the receiver tank and pumps them to an outside drain. Simple to install . . . Low operating cost . . . Totally enclosed motor . . . Compact, rugged, rustproof construction . . . Quiet and reliable in operation.

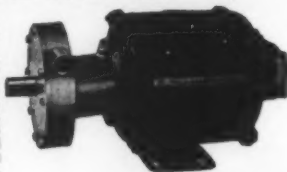
SPECIFICATIONS

Tank — Approximately 1½ gal. capacity with ¾" inlet, ½" outlet. Brass with black enamel outside.
Pump—Bronze centrifugal pump. Delivery app. 4½ GPM at 0 PSI and shut off of 12½ PSI.
Motor — 1/40 HP 3450 RPM, single phase, 60 cycles, 115 volt, totally enclosed, ball bearing, capacitor start motor.

Control — Controlled by a float operated switch, so set to pump out app. 0.8 gal. of condensate at each operation. Built-in check valve prevents the outlet line from draining back into the tank.
Overall Dimensions—3¼" wide; 9¾" long; 12 15/16" high. Weight 21 lbs.

Investigate Eastern's Proven Pumps for ICE CUBING MACHINES

Designed for continuous duty under severe operating conditions, the Eastern Model D-11 Pump is a heavy duty centrifugal pump. Size: 10" x 5½" x 3". Weight: 18 lbs. Power: ½ HP, heavy duty, split phase, fully enclosed, induction motor. Available in 110 or 220 volts A.C. Maximum output: 8 GPM at zero pressure. Maximum pressure: 14.5 PSI at shut off. Furnished in special alloys for hazardous service. Built for dependable service.



MODEL D-11

WRITE FOR COMPLETE CATALOG
Dept. A-11

Eastern INDUSTRIES

INCORPORATED
296 ELM STREET

NEW HAVEN, CONN.
Circle No. 34 on Reader Service Card for more information

ALL METAL USERS WILL FILE CMP'S

National Production Authority announced July 6 that all manufacturers of mass-production items which contain steel, copper or aluminum — including automobiles, household appliances and other durable goods not previously programmed—must apply for allotments of these controlled materials for use during the fourth calendar quarter of this year.

Simultaneously, NPA revised its "Official CMP Class B Product List," which names about 4,000 products containing controlled materials. Manufacturers whose products are listed must apply to NPA for allotments of controlled materials sufficient to fill production schedules authorized by NPA.

Consumer durable goods were designated by asterisks on the original list, and manufacturers were instructed not to file for allotments in the third quarter. The revised list instructs them to file for the fourth quarter. NPA explained that this was done so that these industries would be assured of an equitable share of controlled materials if it is decided to include them under CMP in the fourth quarter.

SCHNACKE MOVES

Schnacke, Inc., manufacturer of refrigerating compressors, has moved its offices, shipping and receiving department, and final assembly operations to 1101 N. Governor, Evansville 7, Ind., it has announced. Manufacturing will continue at the former location. The company said the move was made necessary by increasing business and the addition of defense contracts.

BENUA HEADS REMA WATER COOLER UNIT

A. R. Benua, president of Ebco Mfg. Co., has been elected president of the Water Cooler Section of REMA for the 1951-1952 fiscal year. Others elected to serve for the same period were H. G. Williams, Fedders-Quigan Corp., vice president, and J. F. King, Halsey W. Taylor Co., treasurer.

FINE PRODUCTS IN A NEW LOCATION

Fine Products Co., Chicago, has moved from its former location at 185 N. Wabash Ave. to new and larger quarters at 4837 South Western Blvd.

In connection with the new location, the company announces that it will maintain a substantial stock of all the products it makes, including dehydrators, gas service cylinders, charging hose, ICC cylinders, bench vises and flexible pick-up tools.

LOCAL FIRMS MAY SERVICE ARMY JOBS

The Munitions Board in Washington, D. C. has announced a plan to use commercial facilities for depot-type maintenance of Army, Navy and Air Force equipment.

Current equipment maintenance needs are being surveyed, and the Armed Services will make plans with commercial firms to handle the maintenance work to absorb peak maintenance loads, to keep abreast of schedules and to prevent backlogs.

One purpose is to minimize additional military shop construction and investment in tools and equipment. Military repair facilities will be reserved, when possible, for work that cannot readily be done commercially.

The new policy, according to the Munitions Board, is expected to help small business and to broaden the industrial base of military supply.

GENERAL CONTROLS EXPANDS RESEARCH

Construction on a 24,000 square foot addition to the present engineering building began recently at the Glendale (Calif.) plant of General Controls Co.

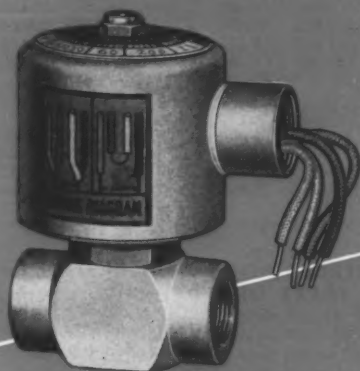
The increase in engineering and research activities was brought on largely by the company's preparation for the defense mobilization program and the need for an expanded civilian product line. The new structure will be two stories in height, the first such building to be erected at General Controls.

The additional facilities will be devoted entirely to research and engineering.

SPORLAN SOLENOID VALVE

with *Twice Dipped*
Layer Wound Coil

*does it
again!*



Sporlan manufactures

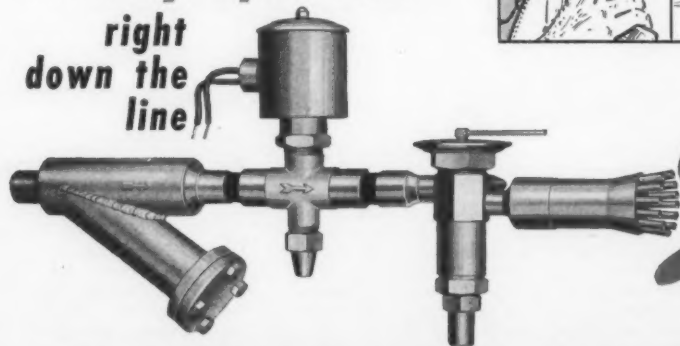
SOLENOID VALVES • SOLENOID PILOT CONTROLS
MODULATING PILOT CONTROLS • REFRIGERANT DISTRIBUTORS
STRAINERS • CATCH-ALLS

SELECT-A-LEVEL Electronic Liquid Level Controls
and the *Only* THERMOSTATIC EXPANSION VALVES
with FLOWMASTER ELEMENTS and SELECTIVE CHARGES

for PEAK PERFORMANCE
on all installations

...buy Sporlan

right
down the
line



Sporlan
VALVE COMPANY



7525 SUSSEX AVENUE • SAINT LOUIS 17, MISSOURI

Circle No. 35 on Reader Service Card for more information
and AIR CONDITIONING • AUGUST, 1951

AIR-CONDITIONING EQUIPMENT AND COMPONENTS AND ACCESSORIES FOR AIR-CONDITIONING AND COMMERCIAL REFRIGERATION EQUIPMENT: QUANTITY AND VALUE OF SHIPMENTS, BY CLASS OF PRODUCTS, 1946-1950

(Value figures in thousands of dollars)

Class of product	1950		1949*		1948		1947*		1946	
	Number	Value	Number	Value	Number	Value	Number	Value	Number	Value
Condensing units	858,367	\$74,483	610,341	\$53,534	841,609	\$73,443	1,039,772	\$98,296	755,538	\$55,379
Ammonia refrigerants	245	352	254	346	1,129	1,799	1,646	2,107	1,409	1,464
Refrigerants except ammonia	858,122	74,131	610,087	53,188	840,480	71,644	973,093	90,224	754,129	53,915
Air-cooled	807,693	57,685	570,280	40,127	797,098	56,829	924,553	73,742	712,781	40,340
Water-cooled	50,429	16,446	39,807	13,061	43,382	14,815	48,540	16,482	41,348	13,575
Condensing units, not reported by type .....	...	...	...	...	...	...	65,033	5,965	...	...
Compressors and compressor units	954,368	46,977	604,431	29,929	459,390	33,493	n.a.	34,586	191,770	15,377
Ammonia refrigerants	2,652	6,756	2,240	5,620	4,156	9,209	4,415	9,481	3,176	5,862
Refrigerants except ammonia	951,716	40,221	602,191	24,309	455,234	24,284	313,682	20,148	188,594	9,515
Compressors and compressor units, not reported by type .....	...	...	...	...	...	...	n.a.	4,957	...	...
Centrifugal refrigeration systems	382	12,249	285	8,189	361	10,351	313	7,814	312	6,593
Heat-exchanger equipment .....	...	62,008	...	40,925	...	48,552	...	63,025	...	40,451
Evaporative condensers	7,818	8,869	4,798	5,850	5,560	7,505	n.a.	7,875	4,859	4,957
Unit coolers	152,996	26,223	95,850	15,707	102,825	17,874	n.a.	20,167	190,552	18,203
Air-conditioning	49,400	13,306	30,044	7,997	21,633	8,276	n.a.	6,208	9,551	3,880
Refrigeration	103,596	12,917	65,806	7,710	81,192	9,598	n.a.	13,959	181,001	14,323
Other heat-exchanger equipment ..	...	26,916	...	19,368	...	23,173	...	28,246	...	17,291
Heat-exchanger equipment, not reported by type .....	...	...	...	...	...	...	...	6,737	...	...
Self-contained air-conditioning units ..	249,854	84,842	123,709	50,584	111,620	49,008	74,976	35,509	47,664	19,500
Room-type	193,807	33,958	89,320	17,940	73,638	15,503	42,904	9,930	29,835	5,870
Other than room-type	56,047	50,884	34,389	32,644	37,982	33,505	32,072	29,579	17,829	13,630
Ice-making machines	11,846	7,203	6,902	4,641	5,947	5,266	7,822	3,122	n.a.	n.a.

* Revised n.a. Not available

1950 INDUSTRY SHIPMENTS UP 48% IN DOLLAR VALUE

Shipments of components and accessories for air conditioning and commercial refrigeration equipment in 1950 were valued at \$196 million, up 48% over 1949 and only slightly below the 1947 peak shipments of \$204 million, according to figures compiled by the Bureau of the Census, Industry Division, Metals and Metal Products Section.

This increase in value of shipments was shared by all four major classes of components and accessories included in this report.

Condensing units showed an increase from \$54 million in 1949 to \$74 million in 1950, a gain of 39%. Compressors and compressor units, valued at \$30 million in 1949, increased 57% to \$47 million in 1950. Centrifugal refrigeration systems were valued at \$12 million in 1950, up 50% over 1949, and the value of heat-exchanger equipment shipped in 1950 amounted to \$62 million, an increase of 52% over the preceding year.

Shipments of self-contained air conditioning units amounted to \$85 million in 1950, a gain of 68% over 1949. The value of shipments of ice-making machines totaled \$7 mil-

lion, up 55% over the previous year.

Figures on quantity and value of shipments in the report represent completed sales of equipment—units actually billed and shipped. Complete units delivered on consignment or shipped to a branch warehouse for stock are not included until such time as they are actually sold. Dollar values shown are manufacturers' net billing prices, f.o.b. factory. The 1950 figures are based on reports from 98 companies.

NEW FIRM TO SELL NOLIN EQUIPMENT

Nolin Mfg. Co., manufacturer of commercial refrigerators, has contracted with the Arcold Co., Inc., of Dallas, Tex., for Arcold to handle sales of the entire output of Nolin's Montgomery, Ala., plant.

Arcold is a new company formed in Dallas by Frank C. Fallon, formerly head of Super-Cold Southwest Co. Associated with Fallon are Neil Nash, J. C. Bownds, and R. F. Fallon, all previously with Super-Cold Southwest. The new company plans national distribution of Nolin products.

Nolin recently redesigned its commercial refrigerator line and added closed-type vegetable refrigerators in 8 and 10-foot lengths.

A-P CONTROLS NOW TWENTY YEARS OLD

In 1931 the Automatic Products Co. of Milwaukee opened its operations in crowded second-floor factory quarters in downtown Milwaukee. The company's first products were controlling devices and heat regulators.

Six months after the company was founded by Roy W. Johnson, the plant had tripled its factory space and had "expanded" its personnel roster to 45 employees.

This year, A-P Controls—the name which Automatic Products adopted last October—celebrates its 20th anniversary. And from its modest origin has grown a company that has two huge Milwaukee plants, a Canadian branch, and a total work force of more than 1,050 employees. It has 14 salesmen who cover the entire United States. And it sells controls to a market that includes every civilized country in the world.

One of the strongest features of the A-P Controls operation is its system of authorized service stations in the U. S. To date, the firm has 44 such stations, with factory-trained personnel who repair and service all types of controls made by A-P.

The company recently purchased a 60-acre tract

of land on the outskirts of Milwaukee. S. A. Johnson, brother of the founder, and vice-president in charge of manufacturing, says A-P hopes "someday" to consolidate its entire operation under one roof at the new location.

E. A. Vallee, executive vice president, who has been with A-P for 17 years directs the firm's sales and advertising activities.

BORDNER BUYS OUT ARCADE HDW. DIV.

The Arcade refrigerator hardware line has been purchased from the Arcade Mfg. Div. of Rockwell Mfg. Co. by L. M. Bordner, who had been sales manager of the Arcade Div. for several years.

Bordner has established the Bordner Mfg. Co., with headquarters in Freeport, Ill., to produce all refrigerator hardware which formerly was being manufactured by Arcade.

PHILCO, REMINGTON NEW ACRMA FIRMS

Remington Corp., Auburn, N. Y., and Philco Corp., Philadelphia, have recently become members of the Air Conditioning and Refrigerating Machinery Association, according to an announcement by ACRMA headquarters.



3 WAYS BETTER!

✓ HIGH STABILITY

✓ LOW WAX

✓ LOW MOISTURE



THE FINEST REFRIGERATION OIL... ... at any price!

THE NEW ... IMPROVED ... ANSUL REFRIGERATION OIL ... IS A RESULT OF THE PERSISTENT SEARCH BY ANSUL CHEMISTS AND REFRIGERATION TECHNICIANS FOR THE FINEST QUALITY REFRIGERATION OIL ... AT ANY PRICE!

Since Ansul Refrigeration Oil was introduced in 1949 ... its acceptance by refrigeration men has continued to expand. In only two short years Ansul is one of the leading refrigeration oils *sold exclusively* through Refrigeration Wholesalers.

The New ... Improved Ansul Refrigeration Oil is now available at leading refrigeration wholesalers everywhere. It meets, or surpasses, every specification established by Ansul Research for a high quality refrigeration oil.

BUY IT AT THE NEW LOW PRICE. Use it for more dependable, trouble-free lubrication.

Ansul has greatly increased its Research facilities — expanded its Research Program — and added new modern Pilot Plant facilities to better serve the Refrigeration Industry.

ANSUL SULFUR DIOXIDE • ANSUL METHYL CHLORIDE
ANSUL OIL • KINETIC "FREON" REFRIGERANTS • ALSO MANUFACTURERS OF INDUSTRIAL CHEMICALS • DRY CHEMICAL FIRE EXTINGUISHERS

NOTE THESE IMPORTANT ANSUL FEATURES —

- *Lower flocc point.
- *50% lower wax content.
- Moisture — ANSUL CONTROLLED minimum.
- *Lower pour point.
- Rigidly checked for high stability.
- *Lowest affinity for moisture.
- New low price.
- Available in quart, 1-gallon and 2-gallon cans; also in 5-gallon and 55-gallon steel containers.

*Improved features

ANSUL
CHEMICAL COMPANY
REFRIGERATION DIVISION
MARINETTE, WISCONSIN

Circle No. 36 on Reader Service Card for more information
and AIR CONDITIONING • AUGUST, 1951

MODERN DESIGN . . .

Continued from page 39

One of the notable differences between the tower installation and the air-conditioning set-up in most other buildings is in the multiplicity of individual controls.

Though each of the square floors has only about 1400 sq. ft. of floor area and the round floors each have only about 900 sq. ft., there are two thermostats, twenty-four air inlets and two exhaust outlets in each of the

rooms. Thus, using large numbers of air inlets, a uniform air distribution as well as temperature control is obtained throughout the building.

Immediately adjacent to the tower and connected to it by a mezzanine office area is an administration annex. Advertising the photographic offices and studios are located in this three-story building, as well as the technical service department of the research and development division. Individual thermostats are placed in each office so that the occupant may determine (within reason) the exact

temperature he desires in his own office.

The conditioned air for the annex is supplied by a separate fan and duct system located in the annex itself, and the chilled water for the air cooling is supplied by the refrigerating unit in the basement.

The 400-ton centrifugal compressor, located at a central point in the basement, provides refrigeration for the entire building, serving five separate air conditioning supply systems. In addition to the tower and administration annex, this plant serves a separate two-story experimental engineering pilot plant constructed in connection with the tower, as well as the original, 10-year-old, Wright-designed administration building.

The air supply for the original building was conditioned by two supply fan systems located at the top of two older towers. Each of these originally employed a "Freon" direct expansion evaporator. These evaporators have been superseded by chilled water coils so as to be served by the new centrifugal unit.

CONTROL TOWER . . .

Continued from page 34

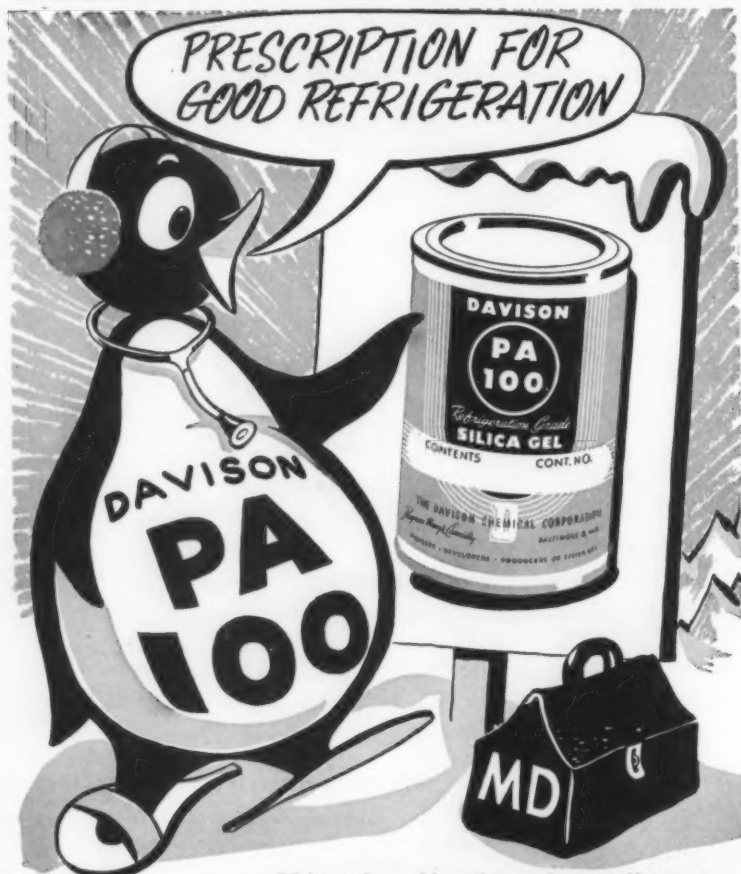
seemed about the only practical solution to the problem it was well worth the added expense.

The problem at the Greater Cincinnati field was not nearly as difficult, for here the conditioning unit was set on a lower level which existed about half a floor below the regular tower control room, so there was no problem of the unit itself interfering with visibility.

The ductwork problem too was relatively simple, for here the original tower construction included a windowsill type of ledge running around all four sides at the base of the slanting plate glass walls. This ledge was about 30 inches high and wide enough so that the air distribution duct could be run right along it.

Three outlet grilles were located in the top of this duct along each of the tower's four sides in such a way that the air would be directed upward across the inner "window" surfaces to provide proper distribution.

The only special precaution which had to be taken was to fabricate this duct of 14-gauge metal so that it would be strong enough for men to stand on it while cleaning the glass.



Moisture free refrigeration can be yours if you use PA-100. Tests prove PA-100 can dry refrigerants to moisture levels that cannot be reached by other refrigerant drying agents. And PA-100 cannot cause corrosion . . . actually helps prevent it by removing corrosive compounds from the system.

There need be no worry about caking, dusting, deliquescing or channeling refrigerants with PA-100.

Prescribe PA-100 for your moisture problems. Available from your jobber in cartridge or bulk can.

Progress through Chemistry

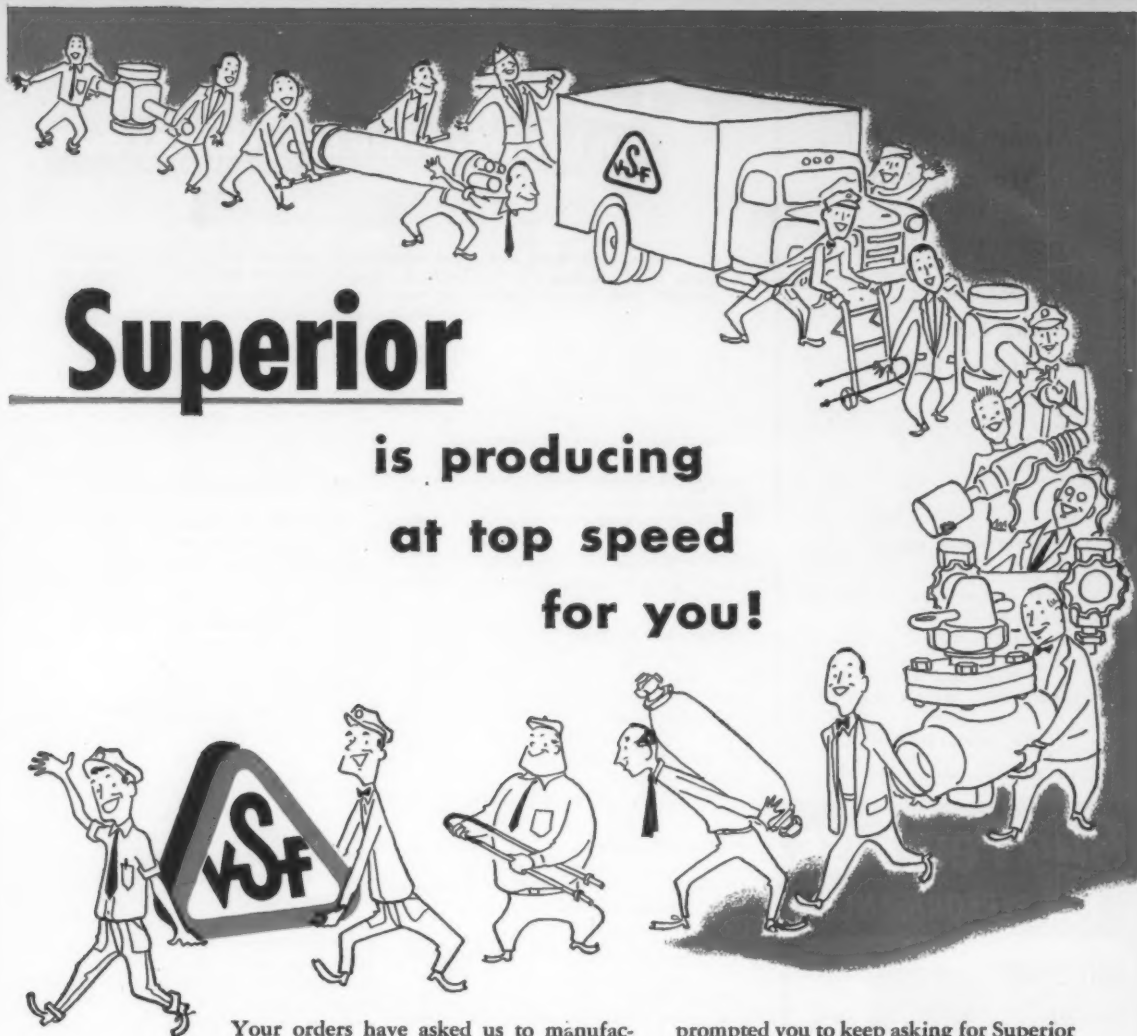
THE DAVISON CHEMICAL CORPORATION

D

Baltimore 3, Maryland

PRODUCERS OF: CATALYSTS, INORGANIC ACIDS, SUPERPHOSPHATES, PHOSPHATE ROCK, SILICA GELS, SILICOFLOURIDES AND FERTILIZERS

Circle No. 37 on Reader Service Card for more information



Superior

is producing
at top speed
for you!

Your orders have asked us to manufacture even more valves and fittings than we have in the past—and we're doing all we can to keep this flow of production continuing to your doorstep. As long as materials last, we'll continue to fill your orders. We somehow feel that the high quality that we maintain, no matter how scarce raw materials become, has

prompted you to keep asking for Superior products. And you can be assured that this same high quality and perfect engineering will be built into every valve and fitting we make—even if you must bear with us on occasional delays in delivery dates. Although we're manufacturing at top speed right now, we are doing our best to produce even more for you.

Remember to specify Superior when you see your wholesaler

Superior valve and fittings co.

Pittsburgh 26, Pa.



Circle No. 38 on Reader Service Card for more information

and AIR CONDITIONING • AUGUST, 1951

Territory open in Alabama, Arizona, California, Florida, Georgia, Illinois, Indiana, Kentucky, Louisiana, Michigan, New Mexico, South Carolina, Tennessee, and West Virginia.

Make More Sales More Profits

WITH THIS

Famous Product

Wide Market

Long Profit

Exclusive Territory

You know us. You know our product. It's been sold **exclusively** by distributors and dealers since 1926. Our franchise is a money-maker because our product has user preference in a wide market and because our discount is **RIGHT**.

This franchise is seldom available, but if you cover any of the territory listed above, and if you sell **aggressively**, this is your opportunity.

(Inquiries welcome from salesmen and sales managers who want to start their own business.)

Write Box 8451
COMMERCIAL REFRIGERATION
and
AIR CONDITIONING

Buy Peerless FOR PERFORMANCE

DRIP-PUMP
for
Condensate
on Air
Conditioners



The Peerless Drip-Pump solves the troublesome drainage problem—on air conditioners, coolers, refrigerators and other machines where condensate is present—by eliminating hazardous gravity drains altogether! The Drip-Pump lifts condensate *up and out, overhead* . . . saves valuable space.

Illustration shows Model DP-2 high capacity high lift pump for air conditioner applications. Also available is Model DP-1 packless centrifugal type pump, driven by "flea-power" motor . . . the ideal pump for use for dome, unit or flash coolers. Both models are ruggedly built for long, hard service; easily and quickly installed. Write for full information.

Peerless of America, Inc.

1501 No. Magnolia, Avenue
Chicago 22, Illinois, U.S.A.

Circle No. 39 on Reader Service Card

54

USEFUL

BULLETINS • BOOKLETS • CATALOGS

The publications listed below are available to readers without charge. Simply circle on the postcard in this issue the key numbers of the items you wish to receive. Your requests will be forwarded directly to the companies concerned.

Freon Coolers . . . A 12-page, 4-color catalog section (101) covering a line of Freon coolers of the dry expansion type has been issued by Patterson-Kelley Co. Instruction for selecting the proper cooler for any particular application are amplified by practical examples worked out in detail. Dimensions, specifications, typical piping and control arrangements, and a table showing pressure drop through each cooler at basic flow rate also are included.

Circle No. 100 on Reader Service Card

Enclosed Motors . . . A bulletin (MU-132) itemizing in word and picture the outstanding features of Wagner Electric Corp.'s polyphase, squirrel-cage, totally enclosed, fan cooled motors designed for use wherever protection against extra corrosion is a required feature. Complete specifications are included.

Circle No. 101 on Reader Service Card

Fitting Insulation . . . This pocket-size folder describes, illustrates, and lists specifications of the "Birpac" line of Fiberglas fitting insulations for ells, tees, and 45s. Available from Birma Products Corp.

Circle No. 102 on Reader Service Card

Coin Meter Selling . . . Results of a new survey on the increasing use of coin meters in the merchandising of commercial refrigeration equipment is publicized in a 4-page folder issued by International Register Co. Tabulated replies to the survey's questionnaire show the increase in dealers using the meter plan, sales of those dealers during 1950, and other factors concerning meter use.

Circle No. 103 on Reader Service Card

Instruments . . . This new bulletin on industrial instruments describes and illustrates dial-type temperature indicating and recording thermometers manufactured by the Instrument and Gauge Div., Electric Auto-Lite Co. A diagram of each unit is included in its specifications, and complete tables of dial and chart ranges are included.

Circle No. 104 on Reader Service Card

Carbon Brushes . . . A new 28-page booklet (GEA-5597) entitled "Carbon Brushes for Electrical Equipment" has been made available by General Electric Co. Describing and illustrating the fundamental considerations given to the design, application, and manufacture of carbon

brushes, and including a section on brush terminology, this booklet is aimed at familiarizing users with the physical characteristics that must be known before proper recommendation can be made for a brush application.

Circle No. 105 on Reader Service Card

Humidity Control . . . Data sheet 10.5-4 released by Brown Instruments Div., Minneapolis-Honeywell Regulator Co., describes a new concept of electronically recording and controlling humidities for industrial air conditioning applications. Included are photographs of the various elements in this system and schematic diagrams of typical applications.

Circle No. 106 on Reader Service Card

Driers and Fittings . . . Bulletin R-7 describing, illustrating, and listing specifications of the "Cross-Flo" drier-filters, "E-Z-See" liquid indicators, and "Frost-Tite" flare nuts manufactured by Remco, Inc. Prices are included.

Circle No. 107 on Reader Service Card

Solder . . . A profusely illustrated 36-page educational brochure on the nature, properties, and uses of solder has been made available by Federated Metals Div., American Smelting & Refining Co. Separate sections are devoted to thermal effects, mechanical properties, principles of soldering, and fluxes. Selection of proper solder for various applications is explained and a list of practical applications is included.

Circle No. 108 on Reader Service Card

Piping Tips . . . A useful sheet (F-4774) on valve piping has been made available by Barber-Colman Co. Actual diagrams show right and wrong ways of handling valve piping, with reasons why each procedure is good or bad.

Circle No. 109 on Reader Service Card

Safety Heads

This new 52-page catalog on Safety Heads is written in non-technical language and fully illustrated with cutaway drawings and typical installation photos. Numerous charts and tables covering various phases of their application also are included.

This free catalog will be furnished to anyone writing on company letterhead directly to Black, Sivalls & Bryson, Inc., Advertising and Sales Promotion Dept., 7500 East 12 St., Kansas City 3, Mo.

NEW

PRODUCTS

For further information on any of these products, simply circle on the postcard provided in this issue the key numbers of the items in which you are interested. Your requests will be forwarded directly to the companies concerned.

Universal Wrench

Product: "TAC" open end ratchet wrench claimed to be nearest approach to a true "universal" wrench.

Manufacturer: Tubing Appliance Co., Los Angeles, Calif.

Features: Single wrench with 64 socket sizes ranging from $\frac{3}{8}$ inch to



4 inches is claimed to efficiently do the work of open end, crescent, box, socket, ratchet, and crowfoot wrenches. Can be used with torque handle for torque rated fittings. Secret of wrench is open end which allows wrench head and socket to fit on tubing and down on fittings. When finished, wrench is lifted from fitting, openings on head and socket are aligned, and wrench is removed. Constructed of unusually strong steel alloys. Full hinge, square drive, removable handle. Ratchet arc as small as 5 degrees. Extra thin wall sockets and overall compactness in design. For increased usefulness, adaptors can be quickly snapped in to allow ordinary sockets to be used. Adaptors for Allen head internal wrenching and for turnbuckle rotation also available.

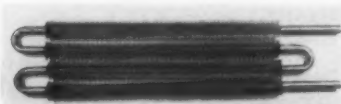
Circle No. 130 on Reader Service Card

Integral Fin Coil

Product: "Thermek" extended heat transfer surface.

Manufacturer: Heatron, Inc., York, Pa.

Features: An extended heat transfer surface produced through a pro-



cess in which spines in the parent metal of the tube are mechanically lifted in such a way that these spines remain attached as an integral part of the original tube. Sufficient wall thickness is allowed in the original tube to provide for the secondary surface and still maintain suitable wall thickness of the primary surface after spining. Heat transfer is increased $1\frac{1}{2}$ to 5 times over that of conventional finned surfaces, therefore Thermek will transfer more heat per pound or foot of material, resulting in lower manufacturing cost and reduced space requirements. Coils can be made without welded or soldered return bends. End preparations for rolling, welding, or for screwed fittings are available. Available in sizes from $\frac{1}{8}$ through $1\frac{1}{4}$ inch in copper, steel, aluminum, stainless steel, cupro-nickel, admiralty metal and inconel.

Circle No. 131 on Reader Service Card

Soldering Iron

Product: "Solder-Matic" soldering iron.

Manufacturer: Contour Marker Corp., Compton, Calif.

Features: Eliminates necessity of having to feed solder manually, and permits soldering with one hand. Chamber fills with soldering pellets. Thumb control releases flow of solder in any quantity. Absolute control of solder flow for spot jobs or seams. Available in three sizes.

Circle No. 132 on Reader Service Card

Plastic Tubing

Product: "Flexlite" plastic tubing for beverage purposes.

Manufacturer: Hudson Industries, Inc., Detroit, Mich.

Features: This non-toxic, non-electrolytic, tasteless, and odorless tubing will stand up to 600 psi pres-

sure. Ideal for carbonated water, beer, CO₂ gas, etc. Will withstand temperatures from zero to 200 degrees. Will not get brittle, peel, or



crack. Unaffected by weather conditions. Made in two sizes: $\frac{1}{4}$ -inch i.d. for CO₂ gas, carbonated water, and syrups; $\frac{3}{8}$ -inch i.d. for beer and water. Nuts and fittings are available for all standard carbonator, soda fountain, and beer hook-ups.

Circle No. 133 on Reader Service Card

3-Foot Soda Fountain

Product: Complete soda fountain unit that is only 3 feet long.

Manufacturer: Foremost Fountains, Inc., Bronx, N.Y.

Features: Answers need of establishments with limited space for



fountain facilities. Has all construction features of larger units in this line. All interior and exterior working surfaces are of stainless steel. Pure vegetable cork insulation throughout. Contains instantaneous cooler that eliminates unsanitary water bath. Also has carbonator, compressor, small bottle storage compartment with all dry refrigeration, removable tilting refuse bin and stainless steel waste chute, 4 syrup jars, 3 crushed fruit jars, 3 syrup pumps and



SOLENOID VALVES

*Made Better to Last Longer—
and Backed by An*

18-Months Guarantee!

JE SOLENOID VALVES are made by the Jackes-Evans Mfg. Co. of St. Louis, manufacturers for 63 years of quality industrial products—many of a high-precision nature.

In establishing the **JE Controls Division**, no expense or effort has been spared to equip the new factory with the most modern facilities for the job. **JE SOLENOID VALVES** have been scientifically developed and thoroughly tested in a complete research laboratory under the direction of competent engineers.

In short, **JE SOLENOID VALVES** are built to a standard to justify our unconditional 18-months guarantee.

5 FEATURES OF DEPENDABILITY:

- ① **Tight Seating . . .** No bubble tolerance
- ② **Simplicity . . .** Only two moving parts
- ③ **Long Life . . .** Cool Coils
- ④ **Durability . . .** All corrosion-resistant materials
- ⑤ **Opening Pressure Differential**—higher than most others on the market

May we submit samples for your test and approval? Write today for details.

JACKES-EVANS MANUFACTURING COMPANY
CONTROLS DIVISION
4427 GERALDINE AVE. • ST. LOUIS 15, MO.

a heavy-duty chocolate pump, running water dipper well, concealed cold wall refrigeration in syrup rail, 2 insulated draft arms. Double service water arm for waitress service is available.

Circle No. 134 on Reader Service Card

Air Filter

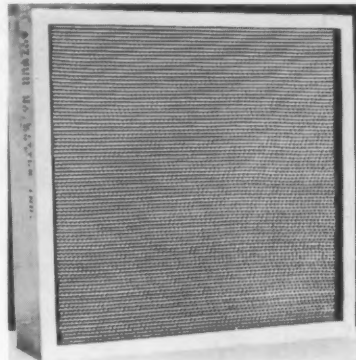
Product: Absolute air filter, developed originally for Atomic Energy Commission and capable of removing better than 99.98% of all dust, smoke, fumes, radioactive particles, spores,

and other microscopic foreign matter from the air.

Manufacturer: Cambridge Corp., Syracuse, N.Y.

Features: Especially applicable wherever absolutely clean air is needed for processing or where toxic or radioactive fumes or dust must be prevented from escaping to the atmosphere or from entering working areas. Available in two standard sizes with rated capacities of 500 and 850 cfm. Individual units may be arranged in multiple banks of filters in built-up ventilating or exhaust systems or cen-

tral station air conditioning systems to handle any desired amount of air. As filter is used its efficiency rises even higher. Static pressure of filter when new is less than 1 inch of water. Filtering material is a soft, felt-



like paper made of specially treated pulp containing very fine asbestos fibers. The paper is folded and packed into the filter in an accordion-pleat arrangement to provide an extensive filtering area within a small space. Filters are 24 inches square by 5 7/8 inches deep for the 500 cfm size and 11 1/2 inches deep for the 850 cfm size. Circle No. 135 on Reader Service Card



Federal "ADVANCE ENGINEERED" TO MAKE Valuable Floor Space PAY OFF BIG!

Up-to-date stores using FEDERAL "advance engineered" displays and refrigerators . . . enjoy greater profit from greater sales. With over 50 models to choose from, there is a FEDERAL model for any size store. All designed to make valuable floor space "pay-off big".

YOUR MEAT DEPARTMENT . . . send sales soaring with Federal Service type Meat Displays (we make self-serve types too) they are a modern asset to your shop. Reliable in performance . . . they are acclaimed everywhere. Just look at these features: Tops in profit per foot per week • Easy to load and work • Quick sliding non-stick doors • Giant sizes (3 platters deep) • Keeps fresh meat fresh • "Eye Appeal Styling" Standard lengths adaptable to continuous display.

DAIRY SALES UP! Yes, with a centralized dairy department! Federal has open displays, reach-ins with gliding doors, all types all sizes for spotting your new dairy department. These compact models, streamlined to save floor space . . . increase sales.

PROFIT FROM PRODUCE. Go after bigger produce department dollars! FEDERAL produce displays . . . give you mass display so necessary for volume sales. Easy to load and easy to reach features, plus the double-duty storage compartments . . . all refrigerated for correct temperature and humidity to keep vegetables fresh . . . longer! Standard lengths . . . adaptable to continuous display.

Federal "Advance Engineered" designs, can save you money, help increase your volume, "step-up" turnover. Investigate Federal the modernized line. Dealers in principal cities, or write to
FEDERAL REFRIGERATOR MFG. CO.
WAUKESHA, WISCONSIN

Federal
REFRIGERATORS

Circle No. 42 on Reader Service Card for more information

Milk Cooler

Product: "Dari-Kool" bulk milk cooler.

Manufacturer: Dairy Equipment Co., Madison, Wis.

Features: Makes available to milk producers the labor-saving and money-saving advantages of bulk milk



handling. Milk is either pumped directly into the cooler from the milking parlor or poured into the cooler from unit milking machines. It is then pumped into the tanker truck for pick-up. Storage tanks are cooled by an ice-cold water spray which runs

down the sides of the tanks. Milk temperature is reduced from 90 to 50 F in less than 1 hour. Measurement of milk in producer's milk house eliminates weight disputes. Losses from stickage and drainage are minimized and bacteria counts reduced. Separate tanks used for morning and evening milk. Stainless steel tanks roll forward on a folding track for easy washing and draining.

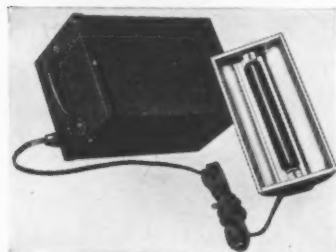
Circle No. 136 on Reader Service Card

Leak Detector

Product: "Raymaster" Model TFS4-B90 blacklight leak detector.

Manufacturer: George W. Gates & Co., Inc., Long Island, N.Y.

Features: Usable for detection of leaks of liquids in vessels of all kinds and sizes. Lamp is simple in operation and may be battery operated. All hazards of shock from power cir-



cuits under wet conditions are eliminated and equipment is completely portable. To operate, a dilute solution of an effective fluorescing agent is placed inside container to be tested. Slightest flow through wall is unmistakably signalled by bright glow under rays of exploring lamp. Because of its nature, this leak detector should be used only in darkened areas. Battery unit weighs 11 pounds; lamp unit (complete with tube) weighs only 1 pound. Both water and oil soluble fluorescing agents are available.

Circle No. 137 on Reader Service Card

Felt Tape

Product: "Kling Felt" reinforced felt tape with pressure-sensitive adhesive back for use as thermal insulator, for vibration and shock cushioning, for scratch protection, and for sound deadening.

Manufacturer: Products Research Co., Glendale, Calif.

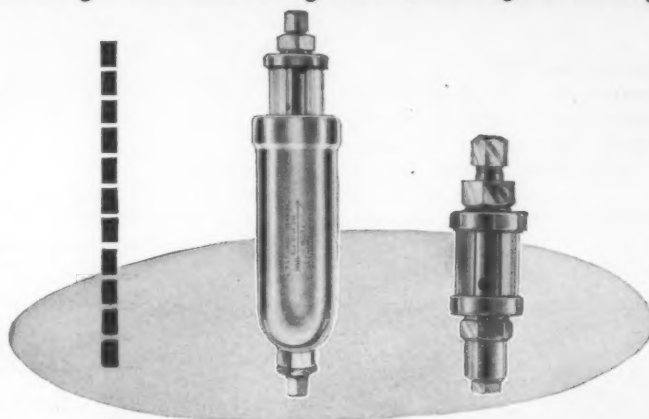
Features: Does not require a paper or other separation material between layers, and consequently can

be applied very rapidly. Pressure-sensitive adhesive back eliminates need for gluing or tying. Finger pressure will make it stay put in any position until forcibly removed. Usable for both permanent installations and where continued access is required, as tape has adhesive on only one side. Available in rolls from 1/4 inch to 66 inches wide, and in thicknesses from 1/64 to 1/4 inch.

Circle No. 138 on Reader Service Card

**BUY FROM YOUR
REFRIGERATION WHOLESALE**

PROMPT DIAGNOSIS—NO LEAKS... every service job satisfactory



Makes Trouble VISIBLE

You don't guess — you KNOW — what is wrong, instantly, when you use Cee-Kleer, the **only** combination Sight Gauge-Drier on the market.

There's no searching in the dark because Cee-Kleer gives full 360° vision for fastest diagnosis of all operating troubles.

Cee-Kleer Driers trap sludge, wax, moisture and fine foreign particles. They are easy to clean and refillable — and there's not a **leaker** in a **carload** of them. Use this Cee-Kleer combination sight-drier on your next service job. Believe me, you'll continue using them to make **every** service job satisfactory.

Ask your Distributor for Cee-Kleer

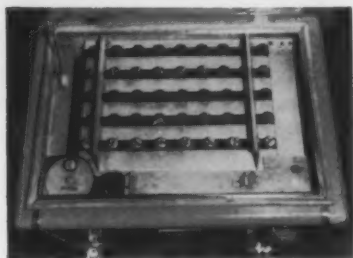
If he cannot supply you, just use the handy coupon and we'll be glad to send you any size you need until your distributor's stock arrives.

Cee-Kleer
PRODUCTS, INC.
947 W. Sixth Street
Cincinnati 3, Ohio

Please ship.....	Cee-Kleer Sight-Driers; size.....
My Distributor is.....	
Name.....	
Address.....	

Circle No. 43 on Reader Service Card for more information

electrical. Can be set to operate on 5, 6, 7, 8, or 10 cents. Fool-proof coin mechanism eliminates slug re-



jector and delivery gate yet rejects most common slugs. Vends bottle sizes from 6 to 12 ounces without adjustment. Available in choice of six standard cabinet colors.

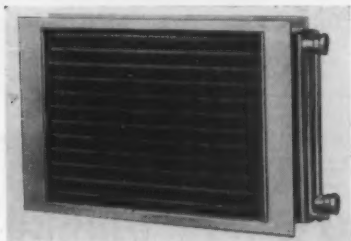
Circle No. 139 on Reader Service Card

Steam Heating Coils

Product: New line of steam heating coils for use in combination with air conditioning coils or as tempering and booster units in long heating units.

Manufacturer: Rempe Co., Chicago, Ill.

Features: Available in both single and double row design. Single row are ideal for booster and tempering service and double row for heavy duty or mixed air heating service. Capacities range from 60,000 to 775,000 Btu/hr. Constructed with heavy gauge steel casings, copper tubes and head-



ers, seven aluminum fins per inch. All fins collared to tubes. Coils tested 350 pounds air pressure for steam working pressures up to 125 pounds.

Circle No. 140 on Reader Service Card

Window Cooler

Product: Completely re-engineered and redesigned 1952 line of window type room air conditioners.

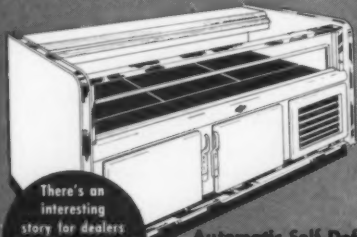
Manufacturer: United States Air Conditioning Corp., Minneapolis, Minn.

Features: New features include all-weather exhaust, easy change of filters, and fully sealed hermetic refrigeration system. Housed in modernly designed cabinet finished in neutral tone of hammerloid enamel. Exhaust feature provides manual control on top of cabinet for regulation



of exhaust damper which will remove air from room to the outside. It functions independently of the cooling section of the unit and can be used for straight ventilation as well as in conjunction with cooling. Adjustable

*Serving America's
Finest Food Stores!*



There's an interesting story for dealers in "Bally Means Big BUSINESS". Copies available

Automatic Self-Defrosting
FROZEN FOOD CASE

with Big Lower Storage Section

...ONE OF 62 DIFFERENT
BALLY MODELS and SIZES

Bally
REFRIGERATED DISPLAY CASES
Bally Case and Cooler Co., Bally, Pa.

Circle No. 51 on Reader Service Card for more information

60

NEW!

SELF-MEASURING
SPILL-PROOF

FLO
DISPENSER!

Accurate
Easy to Use



NOW—the new graduated FLO bottle enables you to add the exact amount of this liquid dehydrant to the system without waste or spilling.

Accurate graduations printed in reverse position on the side of the plastic, break-proof container tell at a glance how much you add. A slight pressure on the side of the bottle starts the discharge instantly into the system. Release of pressure stops the flow at the correct mark. It's simple. It's easy. It's accurate.

FLO destroys moisture upon contact as it travels through the system. Keeps the refrigerant dry and at top efficiency.

Fill it!—Don't Spill it!

AT YOUR JOBBER

ALLIN MANUFACTURING CO.

1153 West Grand Avenue, Chicago 22, Illinois

Circle No. 50 on Reader Service Card for more information

AUGUST, 1951 • COMMERCIAL REFRIGERATION

louvers provide four-way directional control of air circulation. Available in 1/2 and 3/4-hp models.

Circle No. 141 on Reader Service Card

Time Control

Product: Built-in timer control for dehumidifier operation.

Manufacturer: Paragon Electric Co., Two Rivers, Wis.

Features: Will turn off dehumidifier at a set time each day and then turn it back on again after a predetermined "off" period has elapsed. Eliminates need of allowing dehumidifier to run continuously or turning it on and off manually. Designed to operate without attention on part of owner.

Circle No. 142 on Reader Service Card

Power Sockets

Product: Complete new line of power sockets.

Manufacturer: Bonney Forge & Tool Works, Allentown, Pa.

Features: Precision broached



sockets are available in regular length with double square sockets for 1/2-inch drive. To meet "all-purpose" requirements where bolts run longer than the normal length of nut, single hexagon, bolt clearance length power sockets are available in 1/2 and 3/4-inch square drives. Sockets are made from selected alloy and especially treated to withstand rugged use.

Circle No. 143 on Reader Service Card

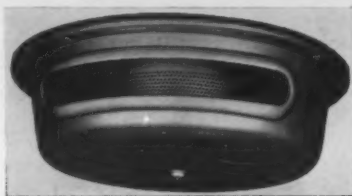
High Pressure Diffuser

Product: "Kno-Draft" Type HPC II high pressure air diffuser.

Manufacturer: W. B. Connor Engineering Corp., New York, N.Y.

Features: Operates at high pressures and velocities, using unusually small, space-saving, exposed ducts of uniform size. High-induction air mixing results in draftless distribution, permits greater temperature differentials between supply and room air. A smaller volume of sharply cooled air thus provides the cooling effect that would otherwise require a greater amount of air at a higher temperature. Handles air up to 3000 fpm, 2 inches static pressure in ducts, and supply air 25 degrees colder than room air. Decibel rating at this pres-

sure is 50. Unit may be adjusted by an externally operated sleeve damper



to discharge any volume of air between 90 and 180 dfm without altering diffusion pattern.

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Metal Nameplates

Product: "Autograph" metal nameplates for identifying equipment sold or serviced by the firm using them.

Manufacturer: Metalcraft, Inc., Mason City, Iowa.

Features: Individually designed for each user's needs. After design has been approved by user, nameplates are lithographed in red and black ink on chrome plated metal. Adhesive backing makes it easy to permanently mount nameplates on any grease-free surface, either flat or

curved. Made in two sizes: No. 1 (illustrated) and No. 2, $2\frac{3}{8} \times \frac{9}{16}$ inches, in quantities of 100 or more.

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Ice Cream Display Case

Product: "Display-Rite" Model RCD-2062 ice cream and frozen food display case.

Manufacturer: Weber Showcase & Fixture Co., Inc., Los Angeles, Calif.

Features: Smaller version of original model of this case introduced

last year. Identical to original case except in size. Related-item superstructure provides one-third more selling space in same floor space and creates chain-reaction impulse sales both for the ice cream itself and the



toppings, nuts, cookies, cones, and similar items displayed on the two upper shelves and superstructure top.

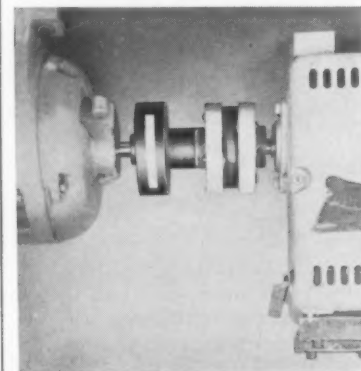
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Mercury Clutch Coupling

Product: "Series E" Mercury clutch coupling.

Manufacturer: Mercury Clutch Div., Automatic Steel Products, Inc., Canton, Ohio.

Features: Complete unit consisting of a Series E Mercury clutch



with provision for mounting a standard flexible coupling between it and the driven load. Designed especially for installation on the shafts of integral horsepower electric motors up to 15 hp. Provides a satisfactory connection between motor shaft and driven shaft without the necessity of maintaining exact alignment.

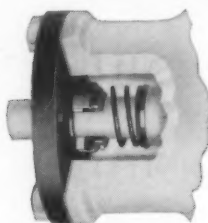
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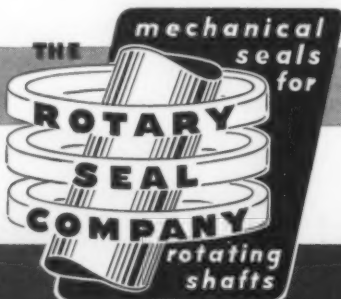


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MOTOR STARTING . . .

Continued from page 33

heavy starting torques fail to accelerate on the first step of such starters, full locked rotor current is drawn from the line on the second step.

Auto-Transformer Starting

This method of starting employs an auto-transformer which is connected to the line during the starting period and supplies reduced voltage to the motor. Auto-transformer type manually and magnetically operated motor starters in sizes up to and including 50 hp are provided with 65% and 80% voltage taps, and in sizes 60 hp and larger are provided with 50%, 65% and 80% voltage taps. Since the torque developed by a motor varies as the square of the applied voltage, the use of the 50%, 65% and 80% taps will reduce the locked torque to 25%, 42% and 64% respectively of the locked torque available at full voltage.

Currents drawn from the line using these taps, including the magnetizing current taken by the auto-transformer, will be approximately 27%, 45% and 66% of the locked-rotor current at full voltage. Auto-transformer type starters are suitable for use where the duty cycle does not exceed one 15-second start every four minutes for a period of four consecutive starts. All auto-transformer starters are held in the running position magnetically and return to their starting position in case of power failure.

The disadvantage associated with auto-transformer starting is that in addition to the initial line disturbance there is a second voltage disturbance when the motor is transferred over from the "starting" to the "running" position. This is because the auto-transformer must be disconnected from the line before full voltage is applied to the motor. In performing this operation, the line current is broken which usually produces severe voltage fluctuations because of transient currents.

Primary Resistor Starting

The primary resistor starter is the simplest form of reduced voltage starter. It consists basically of a

switch for connecting the motor to the line through resistors and a means for short-circuiting the resistors after a time delay of approximately three seconds. In its more common form, it has two magnetic contactors and resistors to impress 65% of normal voltage on the motor terminals at standstill.

As the motor accelerates the line current decreases. The lower current reduces the voltage drop across the resistor and automatically increases the voltage applied to the motor terminals. At standstill the

motor develops a locked-rotor torque equal to 42% of the full voltage locked-rotor torque and draws a locked-rotor current equal to 65% of the full voltage locked-rotor current.

Primary resistor starting has several advantages over other forms of reduced voltage starting. The most important advantage is the fact that the circuit is not broken during starting. The starting power factor is improved by the series resistor and the torque increases at a fairly uniform rate as the motor comes up to speed. Thus, possible voltage disturbance is

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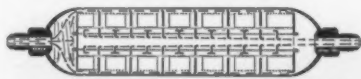


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reduced to a minimum because of the better power factor and the uninterrupted gradual increase in voltage during starting.

Part Winding Full Voltage Increment Starting

The part winding method of starting polyphase squirrel cage motors at full voltage combines the principal advantages of the various reduced voltage starting methods but eliminates the necessity of using autotransformers or resistors. In order

to use this method the stator winding is made up of two or more circuits which are connected in parallel for normal operation.

During the starting operation, full voltage is applied to the various circuits one at a time until all of the stator winding is energized. The line current is not broken during the starting period, thus providing smooth acceleration and reducing voltage fluctuations to a minimum. When the stator winding consists of two circuits, the part winding increment starter consists of two magnetic

contactors, each provided with suitable overload relays and designed to carry one-half the full load current of the motor, and an adjustable pneumatic timer mounted in the same enclosing case.

Pressing the start button closes the first magnetic contactor; full line voltage is applied to one-half of the stator winding and the pneumatic timer begins to operate. Finally, the timer energizes the second magnetic contactor which connects the second half of the stator winding to the line. Using a two circuit winding, the locked rotor current on the first step is approximately 60% of the locked-rotor current at full voltage, and the locked-rotor torque is approximately 48% of the locked-rotor torque at full voltage. This type of starting can be used for most applications where a standard squirrel cage motor and reduced voltage starter would ordinarily be used with starting on approximately 65% of line voltage.

Resistors May Be Used

If still lower current on the first step is desired, resistors may be introduced in series with the first circuit of the stator winding which is energized. After a time delay obtained by an additional timing relay, the series resistance is short-circuited. Thereafter, the operation is as previously described. Using a two part winding starter with series resistance, the current drawn from the line on the first point of the starter can be reduced to as low as 30% of the locked-rotor current at full voltage, with locked-rotor torques ranging downward from approximately 48% to 12% of the torque developed at full voltage.

Part winding increment type motor-and-starter combinations are widely used in commercial refrigerating and air conditioning installations. The initial cost of the combination is lower than that of a motor and two-step primary resistance starter, and its performance is just as satisfactory.

CUBAN DISTRIBUTOR

L. Sosa & Company, Havana, have been appointed by the United States Air Conditioning Corp. as distributors for its room air conditioners in Cuba.



"Our customers sold us on Marsh"

With those words, John Blair (left), of Williams & Co., Inc., was responsible for the smile you see on the face of C. O. McCauley, Marsh Instrument Co. man (right), in the photo above.

Starting way back in 1907, Williams & Co. has grown to be one of the largest refrigeration supply jobbers in the country—operating warehouses and stores in Pittsburgh, Cincinnati, Columbus, Cleveland, and Toledo—all because of determination to handle only top-grade products and to render only top-grade service. Both Mr. Blair and Mr. Andrew Horner, well-known Williams counter man (center), agree that "it was the steady demand for Marsh gauges, thermometers and controls that sold us on the Marsh line. Our customers need equipment that stays accurate and when they call for Marsh so consistently, we know there's good reason."

Wherever you are located, you will find up-to-the-minute jobbers like Williams & Co. who handle the complete line of Marsh Instruments and Marsh Electrimatic Valves because they are built to be dependable. Some of the popular products are described here. For the full story—

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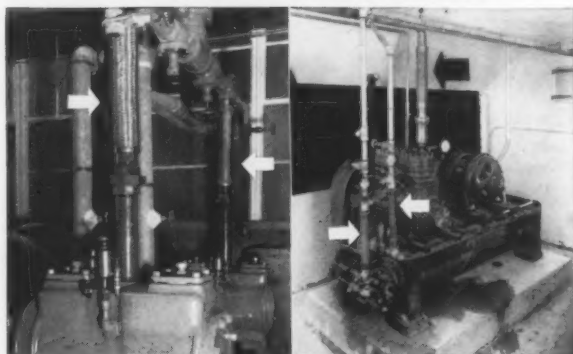


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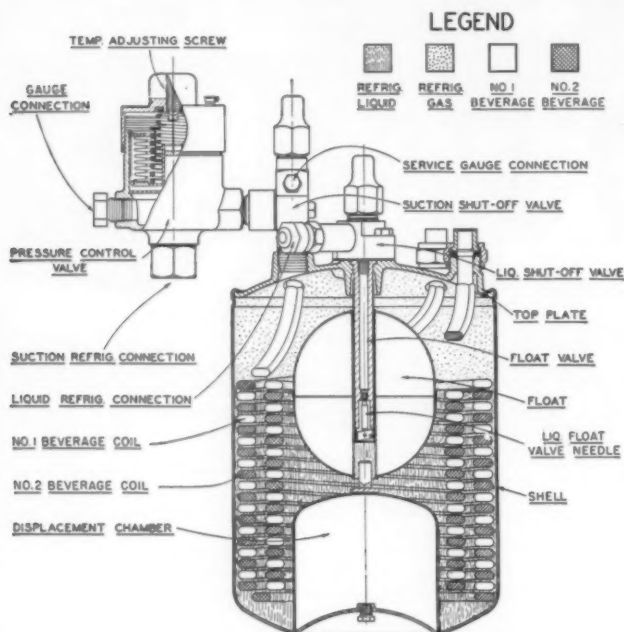
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AUGUST, 1951 • COMMERCIAL REFRIGERATION

CONTRACTORS

NEWS • ACTIVITIES • PLANS

Some Questions and Answers on The Controlled Materials Plan

The following questions and answers about the Controlled Materials Plan, which went into operation on July 1, are taken from a booklet recently issued by the National Production Authority office of Production Controls.

Q. A service and repair shop needs to purchase replacement parts which are class A products. How may the repair shop obtain such class A products?

A. If the class A products which the service and repair shop wishes to purchase are strictly repair and replacement parts they may be purchased without making an allotment to the supplier. Manufacturers of class A products for repair and replacement parts have been instructed to file CMP-4B application for the controlled materials necessary for the manufacture of such parts.

Q. How do repair shops, such as armature winding shops, secure controlled materials for their operation?

A. At the present time, such repair shops may extend the DO ratings which they receive from their customers for the procurement of necessary controlled materials other than MRO. Under the Controlled Materials Plan, materials will be provided under CMP Regulation 7 as production materials for such repair shops, and they will procure the controlled materials required for maintenance, repair and operating supplies under the provisions of CMP Regulation 5.

Q. How does an independent hardware jobber, serving retail outlets, procure products to continue normal operations?

A. Generally speaking, jobbers and wholesalers who are not "distributors" as defined in CMP Regulation 4 do not operate under the Controlled Materials Plan. They will continue

to conduct their businesses just as they have in the past.

Q. How does a wholesale or a retail distributor operate under CMP? Can he apply for a rating with which to buy the product he sells? Or must he depend on ratings extended to him by others?

A. One of the basic concepts of CMP is that end product production should generally not be controlled through components. We, therefore, intend to be as liberal as possible with allotments to components manufacturers. This will normally include most of the items sold through mill supply houses and industrial distributors. The manufacturers of the products that these mill supply houses

sell will apply to their NPA industry division on CMP-4B and will receive an allotment to cover their authorized production, and will base their requests for material on their order backlogs. Since the order backlog includes all distributors' orders, the distributors should receive their needs.

Q. What provision has been made for an allotment symbol to be used in the purchase of controlled materials for maintenance, repair and operating supplies?

A. It is anticipated that NPA Regulation 4 will be self-applied by persons who need controlled materials for MRO.

Q. Will CMP eliminate the DO-97 rating for maintenance, repair and operating supplies for those manufacturers who require controlled materials for MRO?

A. It is anticipated that NPA Regulation 4 will be withdrawn upon the issuance of CMP Regulation 5, which will provide assistance in the procurement of maintenance, repair and operating supplies. CMP Regulation 5 will provide an MRO allotment symbol for the procurement of controlled materials for MRO supplies, and a DO-MRO rating for the procurement of products and materials other than controlled materials to be used for these purposes.

Proposed New York Code Would License "Master Contractors"

As reported in last month's *Contractors Section*, a proposed amendment to the administrative code of New York City covering the issuance of licenses to contractors engaged in installing, repairing, servicing and maintaining refrigeration systems has been introduced, with the support of the Refrigeration & Air Conditioning Guild, Inc.

For the information of those interested, excerpts from the proposed law are published below.

A LOCAL LAW to amend the administrative code of the City of New York, in relation to issuing licenses to master refrigeration contractors engaged in installing, repairing, servicing and maintaining refrigeration systems.

Be it enacted by the Council as follows:
Section 1. Chapter Twenty-six of the administrative code of the City of New York is hereby amended by adding thereto a new

title, to follow title D of Chapter Twenty-six, to be title E of Chapter Twenty-six read as follows:

TITLE E

"Refrigeration Licensing Code"

SE26-1.0 SHORT TITLE. This title shall be known and may be cited as the "Refrigeration Licensing Code."

SE26-2.0 PURPOSE. Since there is danger to life and property inherent in the use of any refrigerating system, the refrigeration code is enacted to regulate the business of erecting, installing, altering, repairing, servicing or maintaining any refrigerating system in the city of New York and the licensing of all persons who engage in such business.

SE26-4.0 DEFINITIONS. Unless otherwise expressly stated, the following terms whenever used in this title, shall respectively be deemed to mean and include:

1. *Alter*. The addition to or removal of any equipment, in a refrigerating system by which the refrigerant, refrigerant capacity, refrigerating capacity, pressure al-

lowed or location of any part of the system is changed.

4. *Certificate of Inspection.* The certificate of the commissioner that the erection, installation or alteration of any refrigerating system specified in such certificate has been inspected and is approved by the Department, either temporarily or finally, if such certificate is required.

5. *Commissioner.* The Commissioner of Housing and Buildings.

6. *Equipment.* A general term including material, fittings, machinery, devices, appliances, fixtures, apparatus, and the like, used as a part of, or in connection with any refrigerating system.

7. *Erect.* The assembling of any refrigeration or air-conditioning parts or equipment and to set the parts or equipment into place for use.

8. *Install.* The placing in position, attaching all connections, of any refrigeration or air-conditioning equipment for service or use.

9. *License.* The written authorization of the commissioner to an individual, partnership or corporation to engage in the business of erecting, installing, altering, repairing, servicing or maintaining any refrigerating systems.

10. *Machinery.* Refrigerating equipment including but not exclusively any or all of the following: compressor, condenser, generator, absorber, receiver, cold diffusers, automatic controls, connecting pipe, evaporator, evaporator condenser, water tower, or complete Unit System.

11. *Maintenance.* Holding or preserving

in good working condition any refrigeration or air conditioning equipment, to keep it in effective operating condition and to keep it from failing, declining or ceasing to operate.

12. *Master Refrigeration Contractor.* Any person, partnership or corporation who en-



gages in or carries on as his or its regular business, the business of installing, erecting, altering, maintaining, servicing or repairing refrigeration parts of any and all refrigerating systems, apparatus, fixtures,

devices, appliances or equipment utilized or designed for refrigeration or air-conditioning, who carries on such business as an independent contractor having the final determination and the full responsibility for the manner in which the work is done, for the materials used and for the selection supervision and control of any persons employed on the work engaged in by said person, partnership or corporation.

13. *Master Refrigeration Contractor's License.* A master refrigeration contractor's license shall be a license issued to a master refrigeration contractor as herein defined who by passing the required examination and test has qualified as a competent person to be a master refrigeration contractor. In the case of a partnership, the required examination and tests shall be taken and passed by at least one partner and the master refrigeration contractor's license issued to him as a representative under the license to the partnership. In the case of a corporation, the required examination and tests shall be taken and passed by an officer of the corporation and the master refrigeration contractor's license issued to him as a representative under the license to the corporation.

14. *Refrigerating System.* A combination of apparatus in which a refrigerant is circulated for the purpose of extracting heat either refrigeration or air-conditioning where mechanical refrigeration equipment is used.

15. *Repair.* The restoration of refrigeration or air-conditioning equipment to a



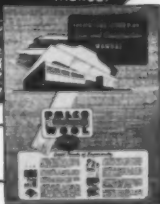
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sound or serviceable condition after it has ceased functioning or its use has been diminished because of a break-down or due to wear and tear.

16. **Service.** The working on, repairing or placing back in use any refrigeration or air-conditioning equipment.

Powers of Commissioner

SE26-5.0 JURISDICTION, POWERS AND DUTIES OF THE COMMISSIONER

- a. The commissioner is empowered to:
 1. Make rules and regulations respecting the erecting, installing, altering, repairing, servicing or maintaining any refrigerating system for refrigeration and air-conditioning within the city of New York, except as otherwise specified.
 2. Cause any refrigeration system to be examined and inspected by an officer or employee of the department designated by him for that purpose and certify in writing the approval thereof.
 3. Order in writing the remedying of any defect or deficiency in the erecting, installing, altering, repairing, servicing or maintaining any refrigerating system.
 4. Cause any order issued by him which has not been complied with to be enforced and to take proceedings for its enforcement.
 5. Make rules and regulations by an order in writing fixing the date and manner of holding examinations of applicants to become licensed refrigeration contractors and, in like manner upon recommendation of the license board, make rules and regulation respecting the issuance, suspension and revocation of licenses.
 6. Grant written permission to use refrigeration or parts of any refrigerating system in unusual cases not covered by this title.
 - b. The foregoing provisions are detailed statements of certain powers possessed by the commissioner and shall not be construed as limiting his authority.

Contractor on Board

SE26-8.0 LICENSE BOARD. The Mayor of the city of New York shall appoint a board, with the aid, assistance and advice of the commissioner, to determine the fitness of applicants for licenses, and may, for cause shown, remove any member thereof and shall fill any vacancy therein, which board shall consist of:

1. An officer or employee of the department.
2. A master or employing refrigeration contractor.
3. A member of the general public.
4. A registered architect of at least five years experience.
5. A graduate mechanical engineer from a University recognized by the state of New York State Board of Regents, specializing in refrigeration for the last five years.

The four appointed members shall serve for two years except when the bill is first enacted, two of the members of the board shall serve for only one year.

SE26-9.0 QUALIFICATIONS OF MASTER REFRIGERATION CONTRACTORS. All persons applying for a refrigeration contractor's license shall be over the age of twenty-one and citizens of the United States, thoroughly proficient in the reading and writing of the English language and

shall have had not less than five years practical mechanical experience in the refrigeration industry, except that three years experience in the refrigeration industry shall be sufficient together with a technical degree in mechanical engineering specializing in refrigeration from a college or university approved by the Board of Regents of the University of the State of New York.

SE26-11.0 EXAMINATIONS. Written or written and practical examinations administered to applicants shall be prepared so as to fully test the applicant's knowledge of refrigeration and air-conditioning and the work covered thereby and no license shall be issued unless the applicant attains a passing mark in such examination.

A 34-page directory, "Selling to Armed Forces," and a companion guide, "How to Get Military Business," have been prepared by the Research Institute of America, Inc., for distribution to members. "Selling to the Armed Forces" gives an alphabetical listing of the major articles being bought by military services and the offices that buy them. The booklet also provides a geographical guide to major purchasing offices throughout the country, since, the Institute asserts, "local military purchasing can be an important source of business for both goods and services, with local possibilities presenting more of an opportunity for smaller companies than Washington."

The accompanying report, "How to Get Military Business," explains the procedures to be followed in establishing and maintaining contact with buying offices; negotiating, renegotiating and financing contracts; obtaining subcontracts; selling services; obtaining security clearance and qualifying for 60-month amortization.

Single copies of the booklets may be obtained without charge by writing to the New York offices of the Research Institute of America, 292 Madison Ave.

In addition, the license board shall conduct such investigation as may be proper to determine the applicant's character and fitness. All refrigeration contractors having five or more years experience and showing sworn proof thereof on the effective date of this law, and having all the remainder of the qualifications stated in this article, shall be licensed without an examination.

SE26-12.0 BUSINESS ESTABLISHMENTS, MASTER REFRIGERATION CONTRACTOR.

a. **Master Refrigeration Contractor.** Before the issuance of a license to an individual, a partnership or a corporation, as a master refrigeration contractor and at all times thereafter, the applicant must have a place of business at a specified address in the city located in a business zone in conformity with the zoning regulations and

kept open during business hours, and the individual, partnership or corporation, must own in his, or its own name, a tangible stock of refrigeration parts and/or refrigeration equipment equalling a net cost or wholesale value of one thousand dollars or more. At such place of business, his license shall at all times be prominently displayed, together with a permanent sign of a minimum size of one hundred fifty square inches, stating the name of such license holder and the words "master refrigeration contractor." Such sign should comply with any further detailed regulations which may be made by the commissioner.

License Fees, Renewals

SE26-13.0 LICENSES AND FEES.

a. Before any license will be issued, the applicant shall pay a fee of fifty dollars, and before any license will be renewed, the applicant for renewal shall pay a fee of twenty-five dollars.

b. At the time of filing application for an examination, each applicant shall pay the sum of five dollars. Said sum shall be deemed the cost of such examination and shall not be refunded if the applicant shall fail to present himself for examination or to obtain a passing mark. The examination fee paid for the examination upon which the applicant obtains a passing mark shall be credited on account of the above fee for his license.

c. No license shall be transferable.

d. Each license shall be issued for the calendar year during which it is issued and the full fee shall be payable irrespective of the date of issue.

e. Each license shall continue in force only so long as the same representative continues to be associated with the license holder.

SE26-14.0 RENEWAL OF LICENSES.

Any license issued hereunder may be renewed without examination, provided application for such renewal, accompanied by the renewal fee prescribed above, shall have been filed prior to the expiration of the existing license. Where an applicant can show good and sufficient cause for his inability to renew his license before January first in any year, the commissioner, may, within thirty days thereafter, permit the issuance without examination, of a new license upon payment of the prescribed fee for such new license within said thirty days.

Suspension Is Possible

SE26-15.0 SUSPENSION OR REVOCATION OF LICENSE. Every holder of a license, upon retiring from the refrigeration business or upon the occurrence of any other cause for the suspension or revocation of such license, shall notify the commissioner in writing of such fact, at the same time enclosing the license certificate. The commissioner may, by an order in writing, suspend or revoke any license issued by him after hearing on notice, before the license board, and upon good cause shown, including, among other things, failure to file application for certificate of inspection, fraudulent dealings, misrepresentation or conviction of a felony by a competent court.

SE26-16.0 REFRIGERATION WORK

BY UNLICENSED PERSONS, FALSE REPRESENTATION.

a. No person, partnership or corporation, not the holder of a license, shall erect, install, alter, repair, service or maintain any refrigerating part or parts of any refrigerating system and no person, partnership or corporation shall cause any such work to be done by any person, partnership or corporation holding license as defined herein. No person, partnership or corporation not the holder of such license shall falsely represent that he or it holds such license or shall use in any advertising the words "master refrigeration contractor", or the words "licensed refrigeration contractor", or the words "refrigeration contractor", or any words of similar meaning or import on any sign, card, letterhead, or any other manner. Any violation of this section shall constitute a misdemeanor.

b. *False Statement.* Any person who, with intent to defraud or deceive, knowingly makes a false statement, or causes or procures to be made or aids and assists in the making of a false statement in an application for a license or the renewal of a license or in an application for certificate of refrigeration inspection and approval or in any application provided for in this title or in any proof or instrument in writing in connection therewith, or who shall in any examination hereunder, deceive or substitute or cause another to deceive or substitute shall be guilty of a misdemeanor.

Inspection of Installations

SE26-17.0 INSPECTION; CERTIFICATE OF INSPECTION.

b. Before commencing any work on new installation or new additions to old installation, every holder of a license shall file with the commissioner an application for a certificate of inspection of such work. If, after inspection, such refrigerating systems shall be found to have been erected, installed or altered in conformity with the requirements of law, the commissioner shall issue to the applicant a certificate of inspection, temporary or final, as the case may be. Further, provided that permits will not be required on erection, installation, alteration in use of refrigerating systems in residential occupancies for domestic refrigerators of one quarter H.P. or less, provided that such unit systems comply with all other requirements of this code.

SE26-20.0 VIOLATIONS. Except as otherwise provided in this title, any person who shall violate any of the provisions of this title or who shall fail to comply with any requirement thereof or who shall violate or fail to comply with any order or regulation of the commissioner made thereunder shall, for each and every violation or non-compliance, forfeit and pay a penalty in the sum of fifty dollars or shall be punished by a fine not exceeding Two Hundred and Fifty dollars or by imprisonment for a period not exceeding ninety days, or by both such fine and imprisonment.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

KIRBY APPOINTED TO MIAMI COMMISSION

Cecil E. Kirby, refrigeration contractor and a director and recording



secretary of Refrigeration and Air Conditioning Contractors Association, was recently appointed to the City Commission of Miami, Fla., to fill an unexpired term caused by resignation of one of the five members of the commission. The body is similar in character to a city council or city legislature.

Kirby, who is head of Miami Super-Cold, Inc., and Kirby-Tuttle Co., will serve until the November election. He has been a resident of Miami for 26 years, and is at present a member of the committee named by Mayor William M. Wolfarth to modernize and bring up to date all the building and construction codes of the city.

METHYL CHLORIDE PUT UNDER ALLOCATION

Methyl chloride was placed under complete allocation by the National Production Authority, effective as of July 1. Producers of the chemical wishing to make deliveries in any particular month must apply for NPA permission to make those deliveries, and firms ordering methyl chloride must inform their supplies the use to which it will be put.

The order affecting methyl chloride, Schedule 8 to NPA Order M-45, requires that suppliers must file their applications by the 15th day of the month preceding the beginning of the month in which they expect delivery to be made.

As reported previously, it is estimated that the 1951 demand for the chemical will exceed the available supply by about 5,355,000 pounds.

MIXER UPS PRODUCTION AT N. Y. ICE PLANT

As every refrigeration man knows, losses of 25% can result from poor circulation of brine around ice cans in ice plants. Incomplete freezing of the ice causes large depressions or "cupping" of ice cakes. In many

cases, 1/4 to 1/3 of the cake is unsuitable for commercial use.

This was the experience of a Western New York cold storage plant. Ice is frozen in a long tank holding 210 cans of 325-lb. capacity, arranged in rows of 15. The tank is divided by a longitudinal baffle which directs the flow of 15F brine from one end to the other, then back to the starting point. The system operates 24 hours, and cans are pulled once a day.

While the center cans froze uniformly, severe cupping was experienced along the sides of the tank, where friction cut down the circulation and permitted stagnant films to develop.

The problem was solved, and production materially stepped up, by re-



Installation of this special mixer increased production and lowered costs for a New York State ice plant.

placing the old brine circulator with a new "Lightnin Mixer", supplied by Mixing Equipment Co., Inc., Rochester, N. Y.

Mixco agitation engineers studied the job and found that a flow rate of 70 fpm around the cans would give best results for this particular case. By using special agitation reference data they found that the desired circulation could be obtained with a 2-hp gear drive top entering Lightnin Mixer.

Slight design changes were made in the draft tube through which brine flows, to further increase efficiency.

Results: every one of the 210 cans now freezes right to the top, bringing a substantial increase in the daily ice yield.

Better circulation means that less refrigeration is used to freeze the same tonnage of ice, a further daily saving on power.

*"I save copper with
NIBCO wrot fittings
—and I'm money ahead on the job!"*

There's a Nibco fitting that's right for every part of an installation. That saves bushings . . . and that means copper! When you have less fittings to buy and handle and less joints to make you can be sure you're saving solder and saving time. And at the same time you're giving your customer a sounder job. But that's only part of the story. Because NIBCO fittings are wrot from tubes, each fitting takes less copper and looks better when installed.

You'll be money ahead, too, when you use NIBCO wrot fittings. Ask for them at your jobber's.



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108-page Catalog of
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and sizes of fittings than ever before.

Name

Address

City State

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EGG STORAGE PLANT USES FIBERGLAS INSULATION

An excellent example of proper application of Fiberglas AE (asphalt enclosed) board and AE-F (asphalt enclosed—floor) board is provided in two freezer rooms for egg and butter storage which have been recently completed in Binghamton, N. Y.

The work was done by Chamberlin Rubber Co. of Rochester, N. Y., applicators of Fiberglas insulation, for B. R. Kinney & Son, Binghamton.

The rooms are 60 x 14 x 9 feet high, and 54 x 14 x 9 feet high.

Three layers of AE board were installed on walls and ceilings for a total thickness of 7 inches. Three layers of AE-F board for an overall thickness of 8 inches were applied to the floor.

AE boards 12 x 36 inches were dipped in hot asphalt and pressed into place on the walls and ceilings. On the walls, the second and third layers were secured by hot asphalt and treated wooden skewers. All joints were staggered to avoid a through passage of heat.

The concrete floor was first flood-coated with hot asphalt in which the first layer of AE-F board 3 inches thick was applied.

Two successive layers, the second

2 inches thick and the third and final one 3 inches thick, then were applied to the floor. The final layer of insulation was flood-coated with asphalt and the concrete wearing slab or finished floor was poured.

Walls and ceilings were covered with a coat of aluminum paint.

A total of 50,000 board feet of Fiberglas was used in insulation of the rooms.



VAPOR BARRIER paper is applied over raw lumber covering a former doorway as a base for wall layup, prior to application of first layer of insulation board.



SECOND LAYER of insulation board is applied with hot asphalt and secured by treated wooden skewers.



COMPLETED FREEZER room shows insulation board on walls and ceiling covered by a single coat of aluminum paint, while a concrete wearing slab has been poured over the insulation board in the floor.

NEW COOLING CODE ADOPTED IN TULSA

The Tulsa, Okla., city commission June 7 adopted a refrigeration code after a public hearing where minor protests were made to provisions of the measure.

The ordinance is the same as originally proposed except for four slight changes suggested at the hearing. These changes include increasing the ton capacity of refrigeration units requiring city inspection from 3 to 5 tons. This will eliminate most of the smaller grocery store units.

Firms which already have refrigeration installations will be permitted to do their own repair and maintenance work. The original proposal did not permit this, but specified such work is done by licensed contractors or journeymen.

Another change limits work to be done by refrigeration mechanics on electrical work to minor jobs such as changing fuses and disconnecting motor wires.

The new ordinance goes into immediate effect and requires journeymen and contractors to obtain city licenses. It also specifies that unlicensed apprentices must work under direct supervision of journeymen.

MAY BAN NICKEL FOR SOME COOKING ITEMS

NPA Order M-14 may be amended shortly to prohibit the use of nickel in the manufacture of many items of commercial food cooking equipment, in order to conserve that vital mineral, National Production Authority informed members of the Commercial Food and Beverage Equipment Industry advisory committee at a recent meeting.

NPA agreed to explore the possibility of exempting Type 302 welding rods from the order when committee members pointed out that the nickel tonnage involved is negligible and that the industry cannot continue manufacturing equipment now used in defense plant cafeterias, hospitals and schools without the rods.

VENEZUELAN OUTLET

United States Air Conditioning Corp. has appointed P. C. Bousquet G. and Co. and Stolk and Bousquet, of Caracas, as exclusive representatives and distributors of usAIRco products in Venezuela.

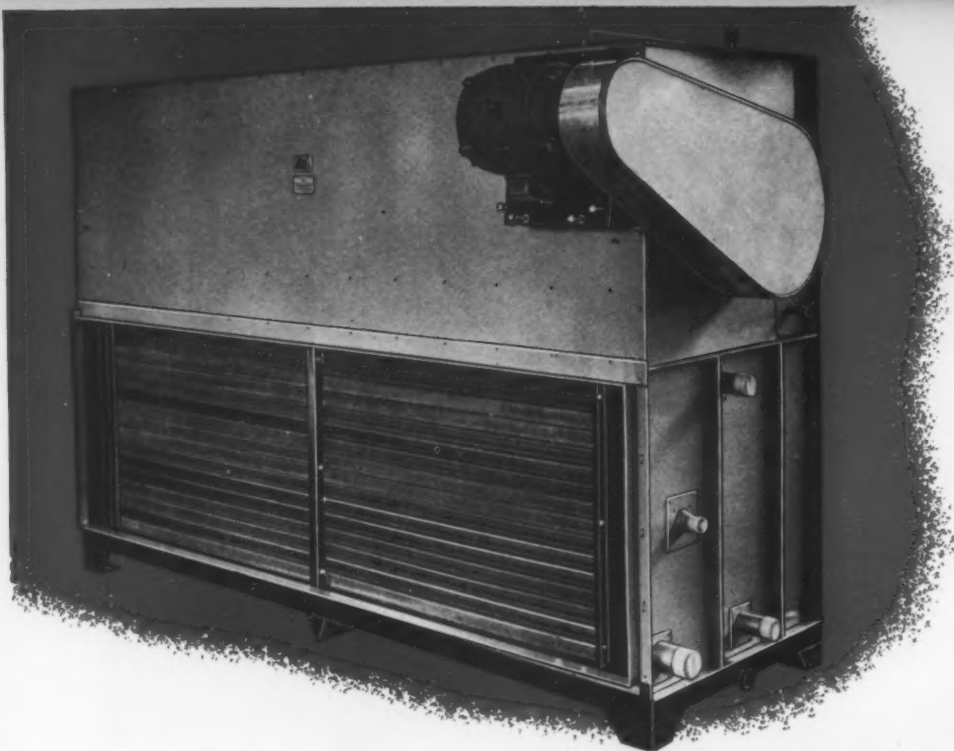
SEEK CIVIL SERVICE FOR N.Y. REPAIRMEN

If a measure recently introduced to the City Council of New York is approved and becomes a law, all persons who service mechanical refrigerators of any type will have to pass Civil Service examinations and will be certified by the commissioner of housing and buildings.

All service personnel, regardless of who employs them, would be covered under the proposed law. The bill, it is said, reflects the city council's intention to tighten municipal regulations governing the repair and reconditioning of old equipment.

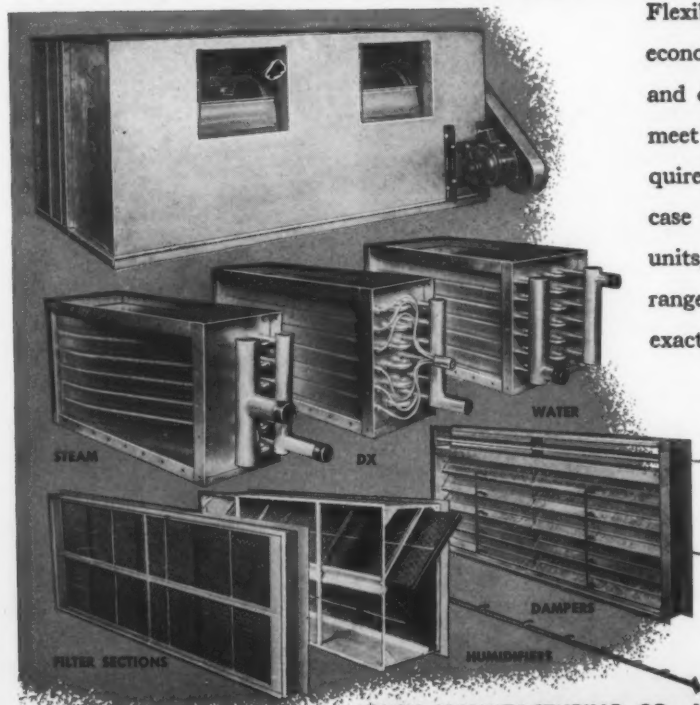
MOBILIZATION GUIDE

"Mobilization Guide for Small Business" is a 31-page guide-book issued by Defense Production Administration to help small business during the defense mobilization period. The booklet is a quick help in locating government services in defense procurement and methods for obtaining materials to supply consumer requirements.



**VERTICAL
AIR HANDLING UNIT**
Illustrated (left)
available with face
and by-pass dampers,
choice of either flat
or V-type filter sec-
tions with throw-
away or cleanable
type filters, humidifi-
ers, and wide variety
of coil selections.

Air Handling **UNITS BY BUSH**



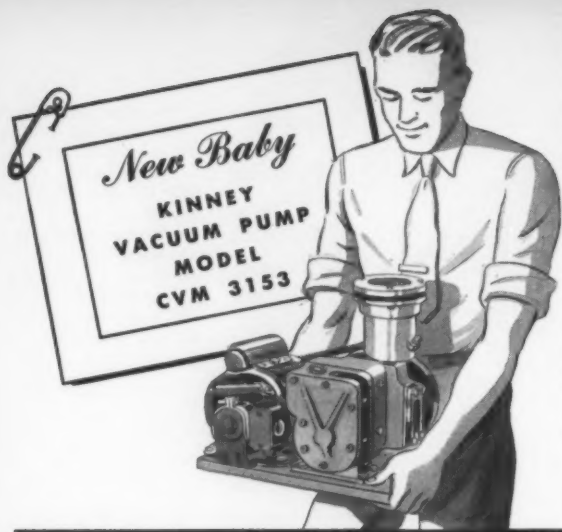
Flexibility of component parts assures efficient, economical delivery of filtered air . . . cooled and dehumidified or heated and humidified to meet the all-year-'round air conditioning requirements of products or personnel. Eight case sizes, in either floor or ceiling mounted units, are available . . . with an overlapping range of air deliveries to meet specifically the exact demands of any application.

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POWER (¼ HP motor)

ULTIMATE LOW ABSOLUTE PRESSURE

(0.1 micron or better)

SIZE (14¼" x 10¼" x 13¼" high)

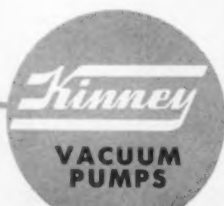
WEIGHT (only 70 lbs. complete)

Compare its quiet operation, its ease of starting, its sound construction . . . and you'll see why Model CVM 3153 is an important step forward in vacuum processing.

Wherever small size and big performance are required, put Kinney Model CVM 3153 to work. Use it in the laboratory. Use it in full scale processing installations, by itself or as a backing pump. Use it in permanent installations or as a portable unit for on-the-spot repair, service, or test work.

There's a Kinney Vacuum Pump for every service, from the big Single Stage 702 cu. ft. per min. Model 181420 to our "New Baby", Model 3153. KINNEY MANUFACTURING CO., 3618 Washington St., Boston 30, Mass. Representatives in New York, Chicago, Cleveland, Houston, New Orleans, Philadelphia, Los Angeles, San Francisco, Seattle.

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V51 and V51-A

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74

JAMISON Doors

Open Wide at
to speed materials handling

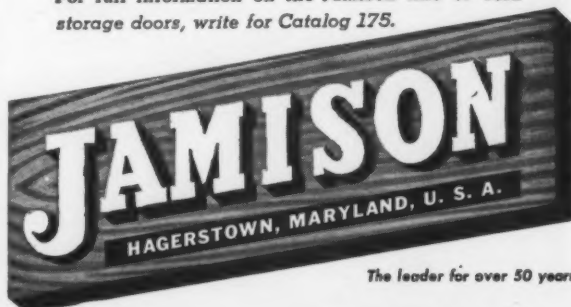


This double cold storage door with an opening 9' x 12' permits the entry of loaded fork lift trucks and the moving of equipment into the refrigerated processing space. For entry of personnel, the lower part of the right hand door can be opened without opening the rest of the door.



Whether you have unusual size requirements such as those illustrated or merely require a standard cold storage door, there is a Jamison door to fit your needs.

For full information on the Jamison line of cold storage doors, write for Catalog 175.



The leader for over 50 years

JAMISON COLD STORAGE DOOR CO. • Hagerstown, Md., U. S. A.
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AUGUST, 1951 • COMMERCIAL REFRIGERATION



Over the COUNTER

Next Year's Business Problems

AN ENTIRELY new set of problems confront refrigeration wholesalers, contractors and service engineers for at least the next year.

If a major war does not develop and we do not believe it will—there should be more material available than was the case during the period of the last war.

The rearmament program is expanding, causing a continually grow-

ing demand for many metals, particularly steel, copper and aluminum, the principal materials used in refrigeration. This increased demand for these metals undoubtedly will result in shortages for civilian use, slow deliveries and growing back orders. Operating expenses will increase because of additional paper work, record keeping, partial shipments, increasing transportation expense. Most inventories are larger than normal right now, but also in

many instances unbalanced, with shortages in copper tubing stocks, refrigerants, some fittings and other items. Deliveries are slow, creating a troublesome problem with little relief in sight.

These scarce materials should be distributed with care, so that stocks will be available to be used with sales for complete installations including condensing units and coils. Keep scarce stock items for regular customers, avoid hoarders or people shopping around who cannot be counted on as future steady customers. Give your regular customers the materials they need wherever possible.

Refrigeration is without doubt fully recognized as essential, in both war and peace, by the authorities heading up material allocation. This fact almost definitely assures a supply of materials for refrigeration purposes. Deliveries will slow up and quantities be reduced from time to time until the rearmament needs are taken care of, but the flow of these materials to the refrigeration industry should continue.

Careful watch on inventories is

COOLING TOWERS

GAS EQUIPMENT

AIR COOLED HEAT EXCHANGERS

Producers of
QUALITY
Specialized Process
EQUIPMENT

Here's Why YOU'LL WANT TO SPECIFY

The
Pritchard "SRF" Tower!

Sturdily constructed of finest California Clear-Heart Redwood, Pritchard Series "SRF" Cooling Towers are especially suited to air conditioning or refrigerating installations requiring 3 to 24 tons capacity.

For lowest initial cost, longest life, greatest efficiency, specify and install the Pritchard "SRF" Tower! Your inquiry invited.

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and **AIR CONDITIONING • AUGUST, 1951**

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very important at this time. Try to get the inventory in balance. Make an effort to move slow-moving items and overstocks to provide capital for use in the business or to purchase materials which are scarce and hard to get. Keep your order files under close observation. Keep pressing for deliveries on needed back ordered materials, within reasonable limits. If you fail to press for deliveries, materials you have on order may go to other people who exert greater pressure for delivery. Alert management will pay off during this period.

An increase in demand for materials used for maintenance and repairs will grow during this period. The volume sales on this class of business is not as high as where new equipment is sold, but usually the profit, percentage-wise, is considerably greater. Go out after this business—it is most desirable at a time like this, and will make up some of the volume lost from a slowing up of sales of new equipment. Any man in the refrigeration business, whose business survived the last war, should find the going much easier during the rearmament program.

The basic needs in business now are good management, close control of inventories, effective intelligent sales effort, close control over accounts receivable and a lot of hard work. One big problem in good management is to keep the cost of operations down to a point where profits may be made with a declining sales volume. This is not an easy thing to accomplish, but it can be done by making sure that all employees give their top efficiency. Loafers have no place in business during this period. Every employee must do just a little bit more than usual and help cut costs where possible.

The present period presents a real challenge to good management. Business will continue to be available, profits can be made even with reduced volume. It is up to you to do a good job. The reward will be well worthwhile.

NEW LINGLE LEASE

The Lingle Refrigeration Co., Kansas City, Mo., has leased a building at 1700 Truman Road and will use the new plant for both fabrication and display of the firm's products.

HERE'S INSIDE DOPE



CUTAWAY CROSS-SECTION of a Jordon frozen food merchandising cabinet, showing the complete interior components of this type of equipment, has been developed for use by Jordon distributors as a showroom display and for local refrigeration meetings. The model, being inspected here by Joseph DiTullio, Jordon's chief refrigeration engineer, demonstrates the application of the capillary tube system and the technique in applying the capillary tube so that it is completely accessible for servicing.

CARBON-TET SHORTAGE MAY AFFECT FREON

Complete control over the distribution of carbon tetrachloride is necessary to meet defense and essential civilian requirements, the Carbon Tetrachloride Industry Advisory Committee and the National Production Authority agreed at a recent meeting in Washington, D. C.

Producers said that such action is needed because supplies of sulfur are extremely scarce, thereby making expanded production of carbon bisulfide impossible. Carbon bisulfide is a raw material used in making carbon tetrachloride.

NPA told the committee it is considering distribution controls because of rising demands for carbon tetrachloride to make Freon, a gas used in refrigerating and air conditioning systems, and for use in grain fumigants, fire extinguishers, insecticides, dry cleaning and various industrial applications.

NPA presented figures showing that Freon requirements this year will be 25 million pounds more than the 85 million pounds available and that grain fumigants will demand approximately 10 million pounds more than available supplies.

Total 1951 requirements for car-

bon tetrachloride, according to NPA, will amount to almost 260 million pounds, while anticipated available supplies will be only 220 million pounds, thus leaving orders for 40 million pounds unfilled.

The committee reported that carbon tetrachloride producers for some time have been allocating supplies voluntarily among their customers. Members pointed out that DO orders are filled first from allotments for each industry which they supply. The remainder is divided among those having unrated orders.

The committee recommended that NPA establish a 20-day lead time for carbon tetrachloride orders so that producers will not be swamped with orders calling for fast delivery.

BILL WOULD REQUIRE TEXTILE MILL COOLING

A bill to require textile mills to air condition their plants has been introduced in the South Carolina general assembly by State Senators Arrants, Leppard and others. Their measure, similar to ones introduced in previous sessions, would regulate the ventilation, temperature and humidity in the state's textile mills. A five-member industrial health board would be created to enforce the proposed law.

CRDA "LADIES' NIGHT"

The Commercial Refrigerator Distributing Association, Inc., New York City, recently held its fourth annual "ladies' night" dinner, attended by 52 members, guests and wives. Headed by George Sutphin of Kelnard Sales & Service, the association is composed by refrigerator distributors and manufacturers' representatives in New York and New Jersey.

WE APOLOGIZE

The article "How 20 Industries Use Cooling for Better Products", which was published on page 84 of our May, 1951, issue, was obtained from "A Planning Guide for Industrial Air Conditioning", published by the Sturtevant Division of Westinghouse Electric Corp., Boston, Mass.

Through an oversight in making up the issue, proper credit as to the source of this information was omitted from the May issue. The Editors hasten to apologize for this oversight, and to assure our readers, as well as Sturtevant, that it was not intentional.

ABOUT PEOPLE . . .

Continued from page 40

nounced. This office is currently held by Louis Ruthenburg, who is also chairman of the board. Ruthenburg, who recommended Jones, will continue as chairman and devote a substantial part of his time to the company's activities.

B. Ray Williams has been appointed western regional division manager for the Warren Co., Inc., with headquarters in Phoenix, Ariz. Williams formerly was zone manager in Phoenix for Super-Cold Corp., in which position he led all zones in whole-



sale sales for the last three years. He has had an extensive background in equipment sales from the retailing and wholesaling standpoint as well as at the factory level. Warren's regional office in Phoenix comes under the operation of the company's western divisional offices in Los Angeles, headed by Albert Rebel and George Lindahl, Jr., formerly manager of the international division and vice president in charge of sales, respectively, for Super-Cold.

Curt H. Sundell has been appointed representative in the northern New Jersey area for Bell & Gossett Co. He will be responsible for the sales of hot water heating, industrial and refrigeration equipment and will make his headquarters in Morristown.

A. B. Bechaud has been elected a director of Sanitary Refrigerator Co., Fond du Lac, Wis., according to Henry H. Uihlein, president. He is also a vice president of Ben-Hur Mfg. Co., Milwaukee. Other Sanitary Refrigerator officers are Herman A. Uihlein and F. J. Bommer, vice presidents, and H. B. Miller, secretary-treasurer.

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Prest-O-Lite Trade-Mark REFRIGERATION OUTFIT

ALL-PURPOSE—Handiest kit yet for installer and service man. 3 stems for soldering, heating, and brazing. Detector for locating non-combustible refrigerant gas leaks.

QUICK—Always ready for immediate use. Torch or detector lights instantly. No pumping, priming, or warmup. Detector locates exact source of any non-combustible halide refrigerant gas leak in seconds.

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TEXACO CAPELLA OIL

(WAXFREE)

Assures clean compressor operation even at temperatures below -100° F.

Here's an oil that gives clean, efficient, low-cost compressor operation at temperatures below -100° F. It's the new and improved *Texaco Capella Oil (Waxfree)*.

Tests show *Texaco Capella Oil (Waxfree)* exceeds competitive refrigerator oils for low haze and floc temperatures... assures freedom from wax precipitation and from foaming. In addition, *Texaco Capella Oil (Waxfree)* has very low pour test, extreme purity, oxidation resistance and freedom from moisture.

Whatever the type or size of compressor... whatever the conditions of operation, and regardless of temperature... there is a *Texaco Capella Oil (Waxfree)* to assure maximum performance at the minimum expense. Available in specially sealed 55-gal. drums, 5-gal., 1-gal. and 1-qt. cans.

Assure the smoother, more trouble-free compressor operation that will build bigger business for Distributors, Dealers and Service Engineers alike. Sell and use *Texaco Capella Oils (Waxfree)*.

★ ★ ★

The Texas Company, 135
E. 42nd St., N. Y. 17, N. Y.



TEXACO Capella Oils (Waxfree)

FOR ALL AIR CONDITIONING AND REFRIGERATING COMPRESSORS

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AUGUST, 1951 • COMMERCIAL REFRIGERATION

THE PRACTICAL REFRIGERATION APPLICATIONS MANUAL

By Harold Smith

Readers are invited to submit their problems to this department. Each letter of inquiry will be answered personally by the author. The most interesting ones will be published in these columns. All problems should be clearly and completely stated and addressed to: **COMMERCIAL REFRIGERATION, Manual Dept., 1240 Ontario St., Cleveland 13, Ohio.**

PROBLEM

"I HAVE a customer who wants to change over an old reach-in box with a sulphur system to Freon. The customer was told by another service man he could charge the sulphur system with Freon. I told him that he should not do that. What do you recommend on this?"

"I want some one else's opinion to show to this customer. The compressor is $\frac{1}{2}$ hp air with low side float fin coil. Please give me your advice."

SOLUTION

WHEN the Freon refrigerants were first put into use, some manufacturers had available change-over plans for condensing units charged with sulphur. To the best of our knowledge, this procedure has long been discontinued. The Freon refrigerants have now been in general use for about 10 years. Sulphur systems, on the other hand, have been largely discontinued for commercial purposes for about the same 10-year period.

Not having detailed information on the equipment under discussion, it would be difficult to definitely state that such a change-over could not be made. However, it would seem to be a rather poor policy to attempt such a change-over, both from a standpoint of efficiency and economy.

During the past 10 years, great improvements have been made in refrigeration equipment. Present day equipment is generally more efficient, more economical to operate

and usually much more quiet in operation. Most of the useful life of this sulphur equipment has been received by the owner. If he has depreciated the equipment, it should stand at no cost on his books.

In our opinion it would be as foolish to rebuild this old equipment used for business purposes, as to rebuild a truck eight to 10 years old. There is probably little or no trade-in value for this old equipment; however, we would without hesitancy recommend that new equipment be sold to this customer to replace the old, out-dated equipment.

A new forced draft coil with expansion valve, new refrigerant lines and a new Freon condensing unit is the only logical and practical solution to this customer's problem. There is every possibility that should he allow some one to change-over the old sulphur equipment to Freon he would be confronted with an expense equaling at least 50% of the cost of new equipment.

In addition, a great deal of service trouble would undoubtedly develop after the change-over was made, resulting in food losses, not to mention expense that could quickly add up to the cost of the new equipment, while he would still be suffering with the old, obsolete, worn out equipment. By all means attempt to convince him of the logic of purchasing new standard equipment. It will undoubtedly be cheaper from every standpoint, and eliminate a lot of future headaches and expense.

We hope our recommendations will be helpful to you in dealing with this customer. Call on your regular refrigeration parts wholesaler for prices on the new equipment you will need to replace this old sulphur equipment.

**BUY FROM YOUR
REFRIGERATION WHOLESALER**

TUBE BENDING CONTEST PRIZE-WINNERS NAMED

Here are the prize-winners and the names of other contestants in five recent tube bending competitions held by various chapters of Refrigeration Service Engineers Society under sponsorship of the Imperial Brass Mfg. Co.

District of Columbia Chapter: winner, Paul D. Grabar, manager, refrigeration department, Hot Shoppes Corp., time, 16 minutes. Second, C. W. Phillips, Refrigeration Test Section, National Bureau of Standards, time 21 minutes, 10 seconds. Third, David Zentz, Warrenton, Va.; fourth, Edward W. Gasser, Hot Shoppes



Corp.; fifth Bill Geoghegan, General Services Administration. Other contestants, G. Rosen, E. Rosen, Dillard, and Collins.

Motor City Chapter, Flint, Mich.: winner, Owen Dobbs, time, 11 minutes, 32 seconds. Second, Stu Fillingham. Other contestants, W. J. Millard, Ted McKay, Ed Thrash, D. Hansen.

Furniture City Chapter, Grand Rapids: winner, Bill Clark; second, Elwood Fry. Other contestants, Bernie Harrington, Gerry Oakman, Don Ellis, Ralph Post.

Kalamazoo Chapter: winner, Gerold Weeks; second, Ken Bennett. Other contestants, Bill Bloom, Bill Schriner, Al Kinnicott, Harold Henderson.

Wolverine Chapter, Lansing, Mich.: winner, Glen Ormsby, Michigan State College Maintenance; second Richard Kellogg, Kellogg Refrigeration Service. Other contestants, Carl Kubler, Charlie Wright, and Craig.

(and all that) but equally for the adequate functioning of all equipment which goes into the client's project.

We find that basically he is *not* interested in advertising per se. Nor in leaflets or broadsides. But he is very much interested in Specification Sheets (the right kind). "And mighty few are *right*," was a general complaint. He is definitely interested in Sweet's Catalog. This is the Bible of his business.

Specification Sheets, of course; we have been getting out these specs for years. Fine for our other markets but not factual, technical enough for the Specification Writer. One of his chief complaints is that the installation blueprints were too small for the kind of visualization he requires.

Finally, when all the briefing and interrogations are collated, our "Intelligence Section" comes up with this:

WHAT IS AN ADEQUATE SPECIFICATION SHEET?

General

File Size—8½" x 11".

A.L.A. File No. on two sides of cover.

The year of publication should be clearly printed on the cover.

Illustrations

1. Large shop drawings that clearly show the following:
 - A. Size and dimensions
 - B. Location and size of intake and drain.
 - C. Electrical connections.
 - D. Capacity tables and traffic recommendations.

2. Good reproduction of Water Cooler finish.
3. Extra shop drawings available for other personnel involved in the building contract.

Copy and Sales Approach

1. Low-pressure sales approach.
2. No "pat on the back" advertising.
3. Give pertinent technical data.
4. Stress ease of installation and maintenance. . . . Minimum of service. . . . 4-Year Guarantee.
5. Include a sample specification.

The Specification Man has some definite DO's and DON'Ts for salesmen. These were indexed as follows:

DO

1. Salesman's contacts should be brief.
2. Have extra Specification Sheets and collateral material.
3. Leave card so the Specification Writer can call if he needs other information.
4. Low-pressure approach . . . stress only the factors of interest to Specification Writer.
5. Have adequate technical knowledge of product in order to answer questions.

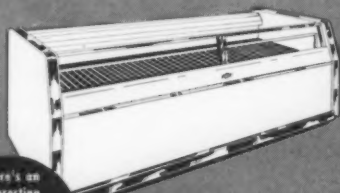
DON'T

1. Rehash material easily accessible in printed form.
2. Attempt to answer technical questions without adequate technical knowledge.
3. Take up time with sales features that the Specification Writer is not interested in.

Using this report as a guide, Sales Management took over and recommended the following Plan of Action:

1. SELL Plant Management by continuing national advertising.
2. SELL the Architect Principal and Designer by advertising in Architectural trade journals.
3. SELL the Specification Writer . . . THE KEY MAN . . . by scheduling a completely informative insert in Sweet's Catalog . . . plus Specification Sheets with the information he requires.
4. SELL the Consulting Engineer by continuing the advertising in engineering trade journals.
5. SELL the Subcontractor by continuing to advertise in his trade journals.

*Serving America's
Finest Food Stores!*



There's an interesting story for dealers in "Bally MEANS BIG BUSINESS". Copies available

OPEN STYLE Single Shelf Case
Front and Rear Loading Models
Canopy Available

...ONE OF 62 DIFFERENT
BALLY MODELS and SIZES

Bally

REFRIGERATED DISPLAY CASES
Bally Case and Cooler Co., Bally, Pa.

Circle No. 63 on Reader Service Card for more information

SPUN END DEHYDRATORS

WITH
SOCONY-VACUUM
SOVABEAD
20% Greater
drying capacity!



Write for illustrated catalog

- Leak-proof, burst proof! One-piece copper construction; uniform heavy wall thickness; forged flare nuts; seal bonnets.

- Provides maximum drying for each pass of the refrigerant.

- Sizes 4 to 30 cubic inches.

TECHNIFLEX CORPORATION
PORT JERVIS, N. Y.

Circle No. 64 on Reader Service Card for more information

The plan of action is splendid, but like any general in a combat area the sales manager must have his troops, train his troops and must supply these troops with adequate tools to do the job.

It happens that our organization is staffed by field representatives—one for each district. These representatives in turn must do the selling spade work and thence train our distributors' sales organization to do the combat selling. To prove that the job can be done, we carefully selected the leading industrial architects in each district and required each of our "task force" field representatives to call on those listed for his district, specifically to see the Specification Writers. It was a 60-day mission. A completely filled-in questionnaire covered each call.

The major ammunition supplied to each of these field representatives is a de luxe operating manual for Specification Writers. This is imprinted with the correct A.I.A. File Number for ready reference to cover any high-priority job on the architect's drawing board, in the preliminary negotiation stage or on bid jobs coming up.

The Operating Manual contained the following materi-

als all of which were prepared in consultation with Specification Writers:

1. 3 complete sets of Specification Sheets.
2. 3 complete sets of Roughing-In Drawings of 10 Water Cooler models.
3. 12 Typical Specification forms.
4. 3" x 4" Sample of Water Cooler finish.

The moral to this dissertation is briefly this: Industry today will survive, and free enterprise with it, by an intelligent approach to completely new marketing problems. Uncle Sam is a new customer; a multi-billion dollar customer. He's a hard customer but he needs goods and he can be sold.

Uncle Sam, in turn, has his purchasing agents. The Specification Writers, in our water cooler business, happen to be one of those purchasing agents. By learning to understand this market we don't have to cash in our chips. We'll stay in business. Your problem may be different. The principles, however, are the same. If you recognize those principles and put your "Intelligence Section" to work on the collating of details, you'll stay in business, too.

St. Louis Market Uses 56 Tons of Cooling



The new Kroger super market in Normandy, Mo., a suburb of St. Louis, is modern in every respect, including air conditioning and refrigeration. Shown at left is the room in which weighing, pre-wrapping and pricing of meat for the store's self-service meat department is handled. After being weighed, wrapped and priced, the meat is carried by conveyor to the package holding cooler. In the upper right hand corner of the photo can be seen the 7½-ton Curtis air conditioner which maintains a 55 F temperature in this department, to help preserve the



meat and keep it from sweating. At right: These 11 Curtis air-cooled machines, ranging from ½ to 3 hp, serve the market's refrigerated cases and coolers. These include a 36-foot produce rack (2 hp unit), walk-in 12 x 24 beverage cooler (3 hp unit), 14-foot frozen food case (½ hp unit), medium produce cooler (½ hp unit), 65-foot meat display (two 2 hp units), large meat cooler (3 hp unit), cheese storage cooler (½ hp unit), pre-packaged cooler (1-½ hp unit), and 30-foot dairy case (1-½ and 2 hp units).



Left: Four 7½-ton Curtis self-contained air conditioning units serve the store area proper in Kroger's new Normandy, Mo., super market. Here, at the far left hand corner beyond the check-out lanes, is shown the location of one of the units. There are nine conveyor-type check-out lanes in the store; belts carry merchandise to checker by automatic



foot control. Bag stands at the ends of check-out lanes hold merchandise for carry-out service. Right: One of the Curtis packaged air conditioners "on location" in the super market's canned goods section. Note that the top of the air conditioners has been painted to match the wall of the store.

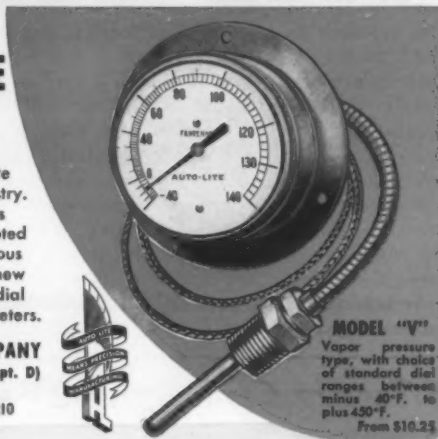
Depend on

AUTO-LITE

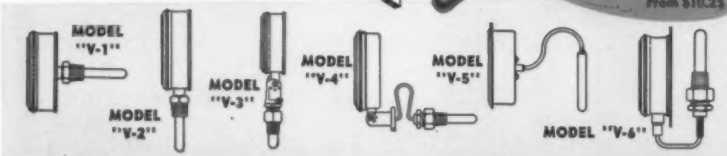
for TEMPERATURE INDICATION

Model "V" is one of many Auto-Lite dial thermometers made for industry. The outline drawings show how this temperature indicator can be adapted to meet specific needs through various standard mountings. Send for our new Catalog No. G-143-B of Auto-Lite dial indicating and recording thermometers.

THE ELECTRIC AUTO-LITE COMPANY
INSTRUMENT AND GAUGE DIVISION (Dept. D)
TOLEDO 1, OHIO
NEW YORK • CHICAGO • SARNIA, ONTARIO



MODEL "V"
Vapor pressure type, with choice of standard dial ranges between minus 40°F. to plus 450°F.
From \$16.25



**CLEANABLE
WATER-COOLED
CONDENSERS**

More Efficient Double-Tube Counter-flow Design

1/2 to 25-Ton Capacity

Acceptance in the field is rapidly changing to "Demand" for these efficient, more economical Cleanable water-cooled Condensers. Owners and service men prefer the "new unit" efficiency that can always be maintained by a simple cleaning process. Brass headers, machined and brazed.

Write for Catalog and Prices
WHOLESALE IN PRINCIPAL CITIES

Halstead & Mitchell
BESSEMER BLDG. PITTSBURGH 22, PA.

Circle No. 69 on Reader Service Card

**DON'T TAKE
CHANCES...**

USE
MADDEN
DUO-TEST
DRIERS

Dependable Madden Duo-Test Driers offer you a one-piece copper shell, silver solder construction, with monel fine-mesh screen at inlet and outlet... top refrigeration grade, dust-free silica gel. Non-refillable types in 3, 6, and 9 cu. in., and refillable types in 12 to 50 cu. in. capacities.

So why take chances—always use the complete Madden line of fittings, driers, strainers, charging lines and accessories.

Write Dept. E for Catalog

MADDEN BRASS PRODUCTS CO.
1111 N. FRANKLIN ST. CHICAGO 10, ILL.

Circle No. 68 on Reader Service Card

INDUSTRIAL VENTILATION...

Continued from page 45

heat from the heat treating ovens, as well as cyanide gas escaping from a cyanide pot, accentuated the problem.

One blower was installed for local exhaust from a buffing wheel and two disc grinders. A second blower exhausts dust from six two-wheel grinders, heat and odors from canopies above ovens and oil baths, and from the cyanide pot into a horizontal type cyclone with screw conveyor type baffle.

Advantages Are Many

As in many other modern dust removal installations, results indicate happier employer-employee relations, elimination of health hazards, reduced maintenance costs of plant buildings and equipment, fewer work stoppages from abrasive dust on bearings and other metal parts, and fewer rejections of finished parts.

Molds are poured and left to dry in a pottery plant. The moisture from the pottery is absorbed by the mold and then driven off by heat furnished by 30 industrial unit heaters. Thousands of pounds of moisture are driven off into this room daily. In order to make continued production possible it is necessary to exhaust this vapor laden air so that dry air may be drawn in. Seventy-seven 24-inch propeller fans handling a total of 462,000 cubic feet of air per minute accomplish this job neatly.

Night Cooling Grows

A relatively new important use of propeller fans for industrial plants is night cooling. A simple system of large exhaust fans is installed for operation during the night period, exhausting heat accumulated through the day, drawing in cooler night air and reducing temperatures 20° to 25°. This not only cools temperatures of building and machines for night workers, but working conditions for employees on the day shift are much more comfortable.

For this type of installation, figure cubic content of the building and supply sufficient air moving equipment to change the room air every 3 to 5 minutes.

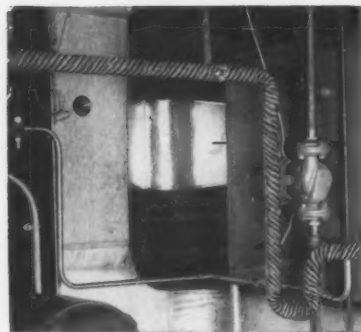
**BUY FROM YOUR
REFRIGERATION WHOLESALE**



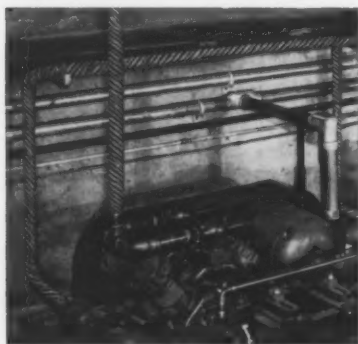
Positively Controls CONDENSATION DRIP

Prevents rust and corrosion, thus prolonging pipe life.

Just wrap cork-filled NoDrip Tape around cold water pipes, suction lines and joints running from refrigerating machines to condensers. Also used on refrigerant lines in air conditioning systems and on cold water pipes in basements.



NoDrip Tape is effective immediately. It can be painted. Clean and easy to put on, without tools, brads, etc.



CONTRACTORS: Include NoDrip Tape protection in your estimates, not only to stop dripping, but for the sake of good appearance on finished installations.

Roll covers about 10 feet of 1/2" pipe. \$1.69 list. Higher west of Rockies and Canada. Order through your supply house or write for information.

J. W. MORTELL CO

Technical Coatings Since 1895

553 Birch St.

Kankakee, Ill.

Circle No. 71 on Reader Service Card

LITTLE CUSTOMERS . . .

Continued from page 37

etc. An additional 20% is deducted for trade-in. The salesman is then paid 10% commission on the balance, which in the instance just cited would amount to \$70 commission on the \$700 balance. If, however, the trade-in is under 20% the difference is split between the salesman and the firm.

Harris points out that this sharing of trade-in savings has not only helped in increasing sales incentive but has also helped to keep junk out of the store. The meter system, he also points out, helps to keep down demands for big trade-in allowances.

Thus, by taking care of the little fellow, telling the *Profit Story* of modern refrigeration, using meters wisely and giving his sales staff extra incentives to make good deals, Harris is holding the O'Bannon firm to the high volume standards set by its retired founder.

"A TO Zero of Refrigeration," a new educational booklet by General Motors, tells in interesting and non-technical language how the modern electrical refrigerator works.

The 93-page booklet, with 118 illustrations in color, is available in limited quantities to schools, colleges, libraries and other educational institutions. Requests should be addressed to General Motors Educational Service, Detroit 2, Michigan.

The booklet traces the development of refrigeration from the days of the early Chinese, Greeks and Romans, who crudely stored ice and snow in pits and trenches to cool their drinks, down to the present time.

The booklet tells how the freezer, compressor and condenser of a modern refrigerator work together with the refrigerant to pump heat from its interior, thus producing cold. Various refrigerants are described. It is explained why temperatures between 32 and 50 degrees help preserve food, and why frozen food can be stored almost indefinitely with little or no loss of freshness, flavor or food value.

The booklet also outlines how food freezers, gas refrigerators and air conditioning equipment work. It goes on to describe research into odd phenomena in the region of Absolute Zero.

United

FOR *Quality*
AND *Economy*

REACH-INS

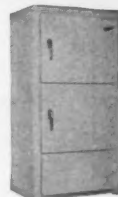
Modern flush fronts with recessed handles in popular sizes. Ten models to choose from. Available in white Dulux, stainless steel fronts and glass doors.



UPRIGHT FREEZER

15 Cubic Feet

Scientific placement of cooling coils, two separate food compartments, dual doors to minimize cold loss, insure balanced freezing at minimum cost.



DRY KOOL BOTTLE COOLER

World famous for performance and design. 14 models to meet all requirements in stainless steel or brown Dulux finish.



KOOLMASTER DIRECT DRAW

Engineered to serve beer to the "Brewmaster's" taste. Its smart appearance enhances any establishment. Choice of 8 models in Stainless steel or brown Dulux finish.



KUBEMASTER ICE CUBE MAKER

Whenever food or refreshment is served, ice cubes as you need them. Choice of 3 beautiful models.



DESIGNED—ENGINEERED—MANUFACTURED

By
**UNITED
REFRIGERATOR
COMPANY**

Locust and Walnut Sts.
HUDSON, WISCONSIN

Circle No. 65 on Reader Service Card



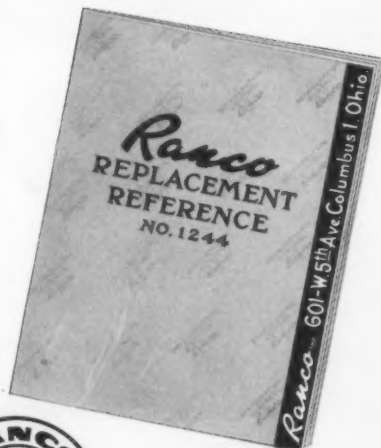
Smart servicemen don't take kindly to makeshift controls—not when they know they can rely on Ranco for the *right* control for any refrigeration job. Whether you're working on a commercial installation, a household refrigerator, a water cooler, or a milk cooler, your Ranco wholesaler has the replacement control you need.

And Ranco—the world's largest manufacturer of refrigeration controls—has *increased* plant capacity, to meet the constantly increasing demand for *genuine* Ranco controls.

REPLACE IT RIGHT WITH RANCO

Ranco Inc.

COLUMBUS 1, OHIO



Want to know which control to use? This book gives you a quick answer. See it at your Ranco wholesaler's.

WORLD'S LARGEST MANUFACTURERS OF REFRIGERATION CONTROLS

Circle No. 70 on Reader Service Card for more information

AUGUST, 1951 • COMMERCIAL REFRIGERATION

HERE'S HOW!

Edited by
Warren W. Farr

Use The Telephone to Ease Your Service Load

To facilitate the service that a customer requests, it is important that certain basic information be obtained from the customer at the time of the service call. A good dispatcher, who consistently asks the right questions, can save the serviceman a lot of time and trouble.

Here is a brief outline which could serve as a guide in getting the desired information:

1. Name of equipment owner. Be sure to have the caller spell this out for you.
2. Name of caller, if different than above.
3. Address and phone number.
4. Name and model number of equipment.
5. Type of application.
6. Age of machine (important if model number is not given).
7. Size of motor; size and make of belt.
8. Nature of trouble.
 - a. If unit has stopped running, ask what it did before it stopped.
 - b. If it is noisy, ask what type of noise it is making.
 - c. Find out whether or not unit is refrigerating and how much frost is on the evaporator.
 - d. If refrigerator has stopped for no apparent reason, ask customer to check wall plug and the fusetron if the motor has one.
 - e. If the refrigerator is running too cold, have customer operate the switch by hand until the serviceman can check it.

If the person calling can supply little of this information, ask him to get what is necessary and call back. Meanwhile, check the office files.

It would be advisable to have some such outline as this printed up in tablet form and kept handy at the telephone.

*I do it
this way...*

BLOCK tin tubing was always a problem for me until I found a simple way to solder connections on the end.

First I swedge the end into an opening slightly smaller than the connector to be sweated. Then I tin the connector with my acetylene torch and coil the block tin until it comes nearly even with my face while standing up in a position as restful as possible.

Next I grasp the connector with a pair of pliers and heat it until I feel it is hot enough to melt the block tin. Then I lower it into the opening, and as soon as the tin melts I blow my breath across it. As simple as this sounds, it drops the temperature quickly enough to make the joint and not leave the tin in a puddle on the floor.

I found this out by accident while soldering the elbow on the draft arm end of a fountain that had a carbonated water valve that would not close completely. After several disgusted attempts being spoiled by a shot of CO₂ water coming up the line at regular intervals, I finally timed my soldering so that the water hit the hot joint at just the proper time to immediately cool it.

Harold J. Huber, Bothell, Wash.

Do You Know That . . .

. . . capillary tubes judiciously used can help many a serviceman out of a dilemma where floats are inoperative for one reason or another?

. . . making friends with other refrigeration service operators in your neighborhood can prove mutually beneficial? Cooperate with your competitors by exchanging parts and ideas. You will find that most of them will be very glad to cooperate with you.

Put Your Service In Partnership With Sales

If you want to develop your service department to the fullest extent as a valuable source of new equipment sales, your first step should be to put it on a par with your sales and engineering departments.

Don't relegate it to a subordinate position, but acknowledge its importance by placing it on an equal basis with those other departments.

The modern serviceman has long since learned that customer acceptance is not built by discrediting the sales department, the engineering department, or the equipment which they sell and specify. He recognizes that his job is to do the necessary work to get the installation operating to the customer's satisfaction just as quickly as possible.

The service department should be fully informed of your entire sales program and the work of the service department should be definitely pointed in the direction of complementing the sales activity.

Teamwork Essential Between Manufacturers, Servicemen

Refrigeration service engineers and the manufacturers of refrigeration equipment must recognize each others, problems and needs and then work together as a team for the satisfaction of the customer. That's what Andre A. Baudat, management director of Sweden Freezer Mfg. Co., told the Western Association of Refrigeration Service Engineers recently.

Baudat said that their common aim of satisfying the customer can only be attained by a teamwork which is often lacking. In discharging their duties and responsibilities to each other, said Baudat, the manufacturer must build as fool-proof a machine as possible and the service engineer

"Prove the Need and the Sale Takes Care of Itself!"

FOR ACCURATE INFORMATION ON
RELATIVE HUMIDITY and
TEMPERATURE...RELY ON

Bendix- Friez

When your customers see the facts and figures, your selling job virtually disappears. With precision-made, dependable Bendix-Friez instruments you can demonstrate with on-the-spot readings or recordings exactly how much and where your customers need temperature and humidity control for maximum comfort in the home, maximum efficiency in industrial operations. Bendix-Friez instruments are built to U. S. Weather Bureau standards by the world's oldest and largest manufacturer of fine meteorological equipment. Write for complete information.

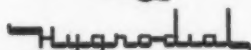
BENDIX-FRIEZ MODEL 160

Portable Humidity and
Temperature Recorder

3" x 3" charts, 10 or 30
hour records. Modern design... handy for small space and difficult locations... built to meet unusual conditions.



BENDIX-FRIEZ



Precision Humidity and Temperature Indicator

Hand-operated and calibrated to professional standards of accuracy by the maker of the world's finest weather instruments. Handsome, modern case—4" high, 3 1/2" wide, 1 3/4" deep—desk or wall mounting.

FRIEZ INSTRUMENT DIVISION of

1340 Taylor Avenue

Baltimore 4, Maryland



Export Sales: Bendix International Division
72 Fifth Avenue, New York 11, N. Y.

Circle No. 66 on Reader Service Card

86

should inform the manufacturer about desirable improvements.

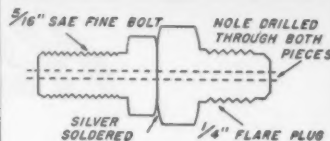
But this information from the service engineer does not usually reach the manufacturer, he stated. It is surprising how seldom the manufacturer hears about such problems from the field, said Baudat.

The manufacturer should also furnish proper instructions for the operation of his equipment, and should evaluate and put into use the suggestions he gets from the service engineer. In turn, pointed out Baudat, the service engineer should read thoroughly and use the instructions the manufacturer furnishes with the equipment.

Baudat then turned to the discussion of the major shortcomings of the manufacturer and the service engineer.

He pointed out that the manufacturer must consider the needs of the service engineer when building his equipment, so that with the help of the service engineer the equipment will continue to satisfy the customer. Too often, Baudat stressed, the manufacturer fails to anticipate and provide means for field service, not realizing that the service engineer

I do it this way...



USE a specially prepared fitting to blow out the oil cooler line attached to Coldepot compressors.

Here is the way this special fitting is made up. A short 5/16-inch SAE Fine bolt is silver soldered to a 1/4-inch flare plug and a hole is drilled through both lengthwise. The threads on the bolt match those of the opening found after removing the screen on the cooler line entrance.

Cleaning fluid can be forced through the line and CO₂ used afterward to blow it out dry. Liquid F-12 also does a good cleaning job when forced through the cooler coil.

Harry W. Custer, Center Line, Mich.

must have certain basic information in order to properly service the equipment.

On the other hand, the problems that give the service engineer most of his trouble stem from the small problems or combination of small problems, as he usually overlooks their importance.

SHANK REFRIGERATION PRODUCTS

Recognized as the
Symbol of Quality!

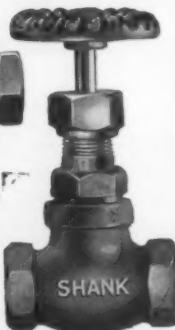


3-Way Dual
Shut-Off Valve

For use where Refrigeration Codes require dual relief valve installations. Stainless steel stem. Indicator plate on hand wheel shows position of valve shut-off. Completely rust-proofed.

Semi-Steel
Shut-Off Valve

Highest grade non-porous metal—full size ports—clean cut threads. Back seated stem—Shank design base—perfect alignment. Long life packing ring.



IF YOUR JOBBER DOESN'T STOCK—
WRITE

CYRUS SHANK CO.

631 W. Jackson Blvd.

Chicago 6, Ill.

Circle No. 74 on Reader Service Card

WANT TO EARN \$5?



You don't have to be a writer or a literary genius! Just jot down some of the shortcuts you've developed in your maintenance or installation work and send them to HERE'S HOW EDITOR, COMMERCIAL REFRIGERATION AND AIR CONDITIONING. Your \$5 will be paid promptly when your maintenance tip is published in the magazine. Let's hear from you!

AUGUST, 1951 • COMMERCIAL REFRIGERATION

OPPORTUNITIES

(Classified Advertising)

Rates: for "Positions Wanted," \$4.00 minimum, limit 25 words. For all other classifications, \$4.50 minimum for 25 words or under, each additional word 15c; boldface type or all capitals, \$7.50 minimum for 25 words or under, each additional word 20c. Box addresses count as five words, other addresses by actual word count. All advertisements in this section are payable in advance.

BUSINESS OPPORTUNITIES

FOR SALE—Commercial refrigeration business established nearly 20 years. Franchised by a well known condensing unit manufacturer. Located in a most prosperous midwest city. Owner has other interest. Selling at inventory cost, inventory can be reduced to \$5000.00 or less. Write Box 8351, Commercial Refrigeration & Air Conditioning.

POSITIONS AVAILABLE

REGIONAL REPRESENTATIVE FOR NORTHEASTERN UNITED STATES... to represent large manufacturer of refrigeration and air conditioning equipment for distribution of refrigeration items through dealers and distributors. Experience in dealer selection, organization and sales training desirable. Give complete details. All replies confidential. Our organization has been informed of this ad. Write Box 8251, Commercial Refrigeration & Air Conditioning.

WANTED—Man with tested commercial cabinet and designing engineering experience. Must be graduate BSME or experience equivalent with actual metal layout and executive drafting tooling background. Salary mid to top four figures. Furnish complete resume of education, employment experience, personal qualities and

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ALTER HEADS CHICAGO ELECTRIC ASSOCIATION

Harry Alter, president of The Harry Alter Co., Chicago and New York distributors of electrical equipment and refrigeration parts and supplies, has been elected president of The Electric Association, a Chicago confederation of electrical tradesmen.

NEW DISTRIBUTORS

Mitchell Mfg. Co., Chicago, has announced appointment of new distributors for its window-type air conditioners as follows: Keps Electric Co., 636 Grant St., Pittsburgh; Modern Distributors, Inc., 29 E. Grand, Oklahoma City; Maumee Sales, Inc., 7000 Lima Rd., Fort Wayne, Ind.

WORK at the Pittsburgh Corning Insulation Research Bureau is said to make possible for the first time a method of applying the lower layer of cellular glass insulation to ceilings without mechanical support.

Because of the large thickness of insulation required in low temperature (below 50 F) installations, the insulating material is usually applied in two layers. Previous to this new development, various sorts of mechanical anchors were employed to fasten the lower layer of insulation to the top layer.

Now tests at the Research Bureau indicate that an average bond strength of 55 lbs. per sq. in. between layers of cellular glass insulation is assured when specifications are followed.

Although mechanical anchors are required to hold the top layer of insulation to the ceiling, the lower layer of insulation can be adhered with hot asphalt. It is important that the receiving surface be flat and even in order to obtain proper area of bond between the two layers of cellular glass insulation. It is also important that the lower layer of insulation be applied to the receiving surface before the hot asphalt has set.

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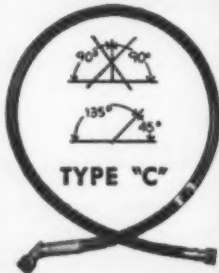
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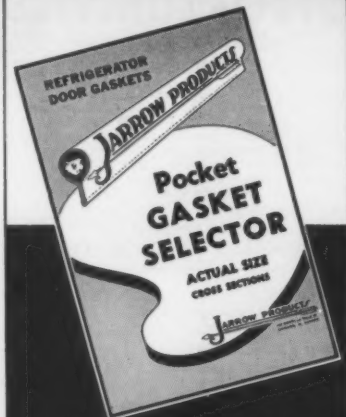
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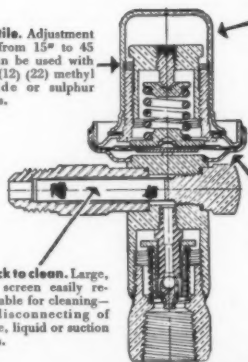
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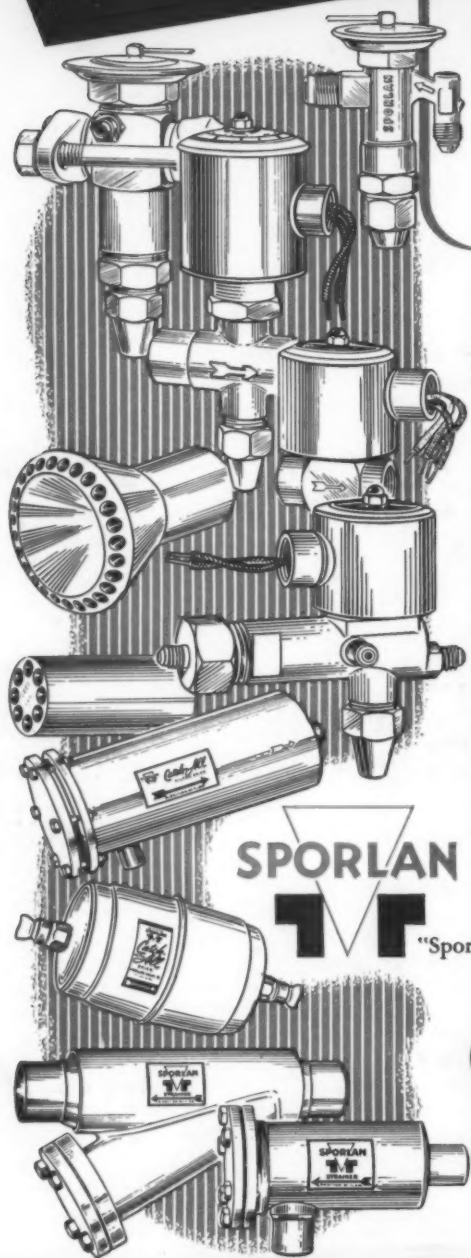
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